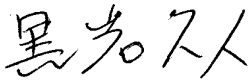
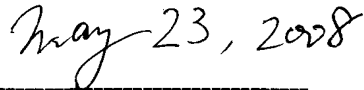


# CERTIFICATE

I, Hisato Kuroiwa,  
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do solemnly and sincerely declare that I am conversant with the English and Japanese  
languages and am a competent translator thereof, and that the attached document is, to  
the best of my knowledge and belief, a true and correct translation of the Japanese  
Patent Application No. 2002-239288 filed on August 20, 2002 in the name of Game  
Server and Program.



Hisato Kuroiwa



Date

JAPANESE PATENT OFFICE

This is to certify that the annexed is a true copy of the following application as filed with this Office.

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Imai Yasuo

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[Inventor]	
[Domicile or Residence]	Ariake Frontier Building A, 3-1-25 Ariake, Koto-ku, Tokyo
[Name]	OKADA Kazuo
[Applicant for Patent]	
[Identification Number]	598098526
[Name]	Aruze Corp.
[Administrator]	
[Identification Number]	100106002
[Lawyer or Patent Attorney]	1:Patent Attorney
[Name]	SHOBAYASHI Masayuki
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## Personal History of Patent Applicant

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Name      Aruze Corp.

**[Document Title] Specification**

**[Title of the Invention] Game Server and Program**

**[Claims]**

**[Claim 1]** A game server being capable of transmitting  
5 and receiving data to and from a plurality of user terminal  
devices via a communication line, the game server comprising:

point providing means for providing a point to a player  
on receipt of a correct answer from the player with a difference  
detection game executed on a display provided to each of the  
10 user terminal devices; and

image switching means for switching and alternately  
displaying a reference image for reference and a difference  
image on the display to find differences.

**[Claim 2]** The game server according to Claim 1, further  
15 comprising:

switching timing setting means for setting a timing for  
switching and alternately displaying the reference image and  
the difference image on the display,

wherein the image switching means has a function to switch  
20 and alternately display the reference image and the difference  
image on the display at the timing set by the switching timing  
setting means.

**[Claim 3]** The game server according to Claim 2, further  
comprising:

25 play-number storing means for storing a play-number data  
indicating a number of times that the player plays the difference  
detection game;

player identification means for identifying the player to play the difference detection game; and

number-comparing means for comparing a reference-number data as a criterion to determine whether or not the player  
5 identified by the player identification means has frequently played the difference detection game and the play-number data that has been stored in the play-number storing means,

wherein the switching timing setting means sets the timing in accordance with a comparison result by the number-comparing  
10 means.

**[Claim 4]** The game server according to Claim 2, further comprising:

winning-number storing means for storing a numerical value data of acquired points or prizes for winning with the  
15 difference detection game played by the player; and

player identification means for identifying the player to play the difference detection game; and;

numerical value comparing means for comparing a reference numerical value data as a criterion to determine whether or  
20 not the player identified by the player identification means has won a large number of points or prizes with the difference detection game and the numerical value data stored in the winning-number storing means,

wherein the switching timing setting means sets the timing in accordance with a comparison result by the numerical value  
25 comparing means.

**[Claim 5]** The game server according to Claim 3 or 4,

comprising:

hint image display control means for displaying a hint  
image to assist the player to find a correct answer on the display  
in accordance with the comparison result by the number-comparing  
5 means or the numerical value comparing means.

**[Claim 6]** A program running on a game server being  
capable of transmitting and receiving data to and from a  
plurality of user terminal devices via a communication line,  
the server executing a difference detection game on display  
10 provided to each of the user terminal devices, the program  
executing the steps of:

providing a point to the player on receipt of a correct  
answer from the player playing the difference detection game;  
and

15 switching and alternately displaying a reference image  
for reference and a difference image on the display to find  
differences.

**[Detailed Description of the Invention]**

**[0001]**

20 **[Field of the Invention]**

This invention relates to a game server and program.

**[0002]**

**[Related Art]**

A difference detection game is one of the games that have  
25 long been popular among the general public since the game is  
simple in terms of its game structure and in terms of its rules  
and it is also good for mental exercise. Here, the difference



detection game may refer to find-the-differences or spot-the differences game or puzzle. In the game, two pictures are typically shown side by side so that a player can compared them to find the differences.

5     **【0 0 0 3】**

      This difference detection game has been played by use of images drawn on paper, however, recently, this game has also been played as an arcade game. In these games, generally, a reference image for reference in difference detection and a  
10    difference image were placed side by side, and a player played a game while comparing these.

**【0 0 0 4】**

**[Problem to be Solved by the Invention]**

      In addition, since a game is played in a condition where  
15    a reference image and a difference image are placed side by side, the difficulty level of a difference detection game has been determined merely at a level where differences are made at difficult-to-detect parts or made at easy-to-find parts. Concretely, in order to heighten the difficulty level, images  
20    are drawn in detail, and difference parts are made in background parts having no relation to mainly drawn images.

**【0 0 0 5】**

      However, players who are used to playing difference detection games can easily find differences however detailed  
25    the difference parts are made, therefore, such players soon grow tired of difference detection games in many cases.

**【0 0 0 6】**

On the other hand, owing to the development in communication technology in recent years, so-called net games, which are played via the Internet, have become popular. In these net games, enjoyment different from that of the prior one-person game, such that players play a game distributed from a server on terminal devices to compete by points, has been created.

**【0007】**

It is an object of the present invention to ease the difficulty level setting of a so-called difference detection game, have enriched variations in this difficulty level setting and acquiring points and moreover, it is an object to provide a difference detection game which a player can enjoy without growing tired of it.

**【0008】**

**[Means to Solve Problem]**

According to the present invention, a game server which is constructed so as to allow a player to play a difference detection game on a display of a terminal device connected to a server via a communication line and provides, when the player elicits a correct answer in the difference detection game, a point on the player and which switches and alternatively displays a reference image for reference in difference detection and a difference image on the display of the terminal device.

**【0009】**

More concretely, according to the present invention, the following can be provided.

【0010】

(1) In a game server which transmits and receives data to and from a plurality of user terminal devices via a communication line, executes a difference detection game on displays provided in the user terminal devices, and includes: point providing means for providing, if an answer from a player is correct, a point on the player, a game server is provided that is characterized in that image switching means for switching and alternately displaying a reference image for reference in difference detection and a difference image on the display is provided.

【0011】

According to the present invention, a game server can transmit and receive data to and from a plurality of user terminal devices via a communication line. In addition, it may execute a difference detection game on displays provided in the user terminal devices. Furthermore, it may be provided with point providing means which provides, if it is judged that an answer from a player is a correct answer, a point on the player. Then, it becomes possible to provide image switching means for switching and alternatively displaying a reference image for reference in difference detection and a difference image on the display. Or, a game server may make the display display a reference image for reference in error detection. In addition, it is possible to provide image display means for simultaneously displaying a plurality of difference images for difference detection with reference to this reference image.

【0012】

When this invention's game server is used, since a game can be played, for example, in connection with a communication line or after downloading game data from the server, a terminal  
5 device user can play a difference detection game anytime he/she likes whenever he/she wants to play it.

【0013】

In addition, since the game server is constructed so that a reference image and a difference image are switched and  
10 alternatively displayed, an advantage is provided such that, compared to simultaneously displaying a reference image and a difference image by splitting a screen into a plural number, a game can be played in an easily viewable condition even on a terminal device with a small display.

15 【0014】

(2) The game server as set forth in (1) is provided that comprises: switching timing setting means for setting a timing in which an image displayed on the display is switched by the image switching means, and is characterized in that the image  
20 switching means has a function to switch and display the reference image and the difference image on the display at the timing set by the switching timing setting means.

【0015】

With the present invention, the game server described  
25 in (1) may comprise switching timing setting means for setting timing in which switching of an image displayed on the display is carried out by the image switching means. Then, the image

switching means can switch and display, on the display, the reference image and the difference image in accordance with the timing set by the switching timing setting means.

【0016】

5           As such, the game server may control switching timing between a reference image and a difference image. For example, it is also possible to quicken switching timing so that a user can easily elicit a correct answer. On the other hand, it is also possible to delay switching timing so that a user cannot  
10 easily elicit a correct answer.

【0017】

          In addition, as described above, display image switching timing may be provided as one element so that, by changing the same, the difficulty level of the game can be changed. It becomes  
15 possible to easily provide a player with a difference detection game having difficulty level variations in an ample amount without managing a large quantity of difference detection games in advance according to difficulty levels. Moreover, the burden of control carried out in the game server can also be  
20 reduced.

【0018】

          (3) The game server as set forth in (2) is provided that comprises: play-number storing means for storing play-number data indicating a number of times a player has utilized the  
25 difference detection game; and player identification means for identifying a player who is about to play the difference detection game, and includes: number-comparing means for

comparing reference number-comparing data as a criterion of determination as to whether or not the player identified by the player identification means has frequently utilized this difference detection game and the play-number data that has  
5 been stored in the play-number storing means, and is characterized in that the timing set by the switching timing setting means is changed in accordance with a result of the comparison made by the number-comparing means.

【0019】

10 (4) The game server as set forth in (2) is provided that comprises: winning number storing means for storing winning points or prizes when a player utilized the difference detection game; and player identification means for identifying a player who is about to play this difference detection game, and  
15 includes: numerical value comparing means for comparing reference numerical value data as a criterion of determination as to whether or not the player identified by the player identification means has won a large number of points or prizes in this difference detection game and the numerical value data  
20 stored in the winning number storing means, and is characterized in that the timing set by the switching timing setting means is changed in accordance with a comparison result of the numerical value comparing means.

【0020】

25 According to these aspects of the invention as described in (3) or (4), in addition to effects produced when the game server as described in (2) is used, it becomes possible to change

the difficulty level of a difference detection game according to the player's state of winning points and utilization frequency.

**【0 0 2 1】**

5           (5) The game server as set forth in (3) or (4) is provided that is characterized in that hint image display control means for displaying a hint image that is advantageous to the player to find the correct answer on the display in accordance with the comparison result of the number-comparing means or the  
10 numerical value comparing means is provided.

**【0 0 2 2】**

According to this aspect of the invention, in addition to the effects as described in (3) or (4), a hint image can be displayed according to the player's state of winning prizes  
15 and utilization frequency on a user terminal of the player, whereby it becomes possible to change the difficulty level of a difference detection game.

**【0 0 2 3】**

20           (6) A program which makes a game server that transmits and receives data to and from a plurality of user terminal devices via a communication line and executes a difference detection game on displays provided in the user terminal devices, execute: a point providing step of providing, if an answer from a player playing the difference detection game is correct, a point on  
25 this player; and an image switching step of switching and alternately displaying a reference image for reference in difference detection and a difference image on the display.

【0024】

According to the present invention, it becomes possible to make "a game server which transmits and receives data to and from a plurality of user terminal devices via a communication line, for executing a difference detection game on displays provided in the user terminal device" "execute a point providing step of providing, when an answer from a player playing the difference detection game is a correct answer, a point on the player, and an image switching step of switching and alternatively displaying a reference image for reference in difference detection and a difference image on the display."

【0025】

When this invention's program is used in a game server, on a terminal device, since a game can be played, for example, in connection with a communication line or after downloading game data from the server, a terminal device user can play a difference detection game anytime he/she likes whenever he/she wants to play it.

【0026】

In addition, since the program is constructed so that a reference image and a difference image are switched and alternatively displayed, an advantage is provided such that, compared to simultaneously displaying a reference image and a difference image by splitting a screen into a plural number, a game can be played in an easily viewable condition even on a terminal device with a small display.

【0027】



## **[Detailed Description of Embodiment of the Invention]**

Hereinafter, embodiments of the present invention will be described in detail based on the drawings.

[Overall configuration]

5     **【0028】**

An overall configuration of an image information processing system by the present invention will be described.

**【0029】**

Fig. 1 is a view showing an overall configuration of a  
10 difference detection game system of the present embodiment.  
As shown in Fig. 1, a difference detection game system of the  
present embodiment is composed of a server 10, which is a game  
server to control the whole difference detection game, and a  
terminal device 20, a portable terminal device 25, or a cellular  
15 telephone 30, which is connected to the server 10 via the Internet  
and on which a user plays a difference detection game. Here,  
the user terminal device may comprise the terminal device, the  
portable terminal device, the cellular telephone, and a  
combination thereof.

20     **【0030】**

As described above, the terminal device 20, portable  
terminal device 25, and cellular telephone 30 are connected  
to the server 10 via the Internet and receive, from this server  
10, a distribution of a difference detection game, control in  
25 progress of a game (control mainly related to an image display),  
a distribution of game results, etc.

**【0031】**

Herein, in the following, a description will be given in a case where a difference detection game is played by the terminal device 20 connected to the server 10 as a first embodiment, and as a second embodiment, a description will be given in a case where a difference detection game is played by the cellular telephone 30 connected to the server 10.

#### 【0032】

<<First embodiment>>

Hereinafter, as a first embodiment, a description will be given in a case where a difference detection game is played by the terminal device 20 connected to the server 10.

#### 【0033】

[Server configuration]

Hereinafter, a block diagram showing a configuration of a server 10 of a part of a difference detection game system of the present embodiment will be shown in Fig. 2.

#### 【0034】

As shown in Fig. 2, the server 10 is composed of a CPU 42, a ROM 43, a RAM 44, a communication interface 45, and a hard disk 46 connected to a data bus BUS.

#### 【0035】

The CPU 42 is structured so as to execute various processes according to programs stored in the ROM 43. Namely, the CPU 42 receives, via the Internet connected by the communication interface 45, information from the terminal device 20 and stores the same in the RAM 44. This information includes information to identify a player who plays a difference detection game on

the terminal device 20.

【0036】

The aforementioned programs stored in the ROM 43 include a program for communication with the terminal device 20 and  
5 a program to display an image on a display provided in the terminal device 20.

【0037】

The hard disk 46 stores, as will be described later, identification data of players who have played a difference  
10 detection game in this difference detection game system, number of times utilized, age, gender, number of times winning prizes as a database of player information.

【0038】

[Terminal device configuration]

15 Next, a block diagram showing a configuration of a terminal device 20 of a part of a difference detection game system of the present embodiment will be shown in Fig. 3.

【0039】

The terminal device 20 is composed of a CPU 61, a ROM  
20 62, a RAM 63, a hard disk 64, a display device 65, a communication interface circuit 66, and an inputting operation part 67.

【0040】

In the hard disk drive 64, programs to execute processes as will be described later are recorded. In addition, the  
25 communication interface circuit 66 is, as shown in Fig. 1, connected to the server 10 via the Internet so as to communicate therewith.

【0041】

The aforementioned programs stored in the hard disk drive 64 include a program for communications with the server 10 and a program to display a game image distributed from the server 10 on the display device 65.

【0042】

In addition, the inputting operation part 67 is for input of a part judged to be a difference in a difference detection game and for carrying out an operation to transmit the answer to the server 10.

【0043】

[Action]

Next, based on a timing chart of Fig. 4, a description will be given of actions carried out between the server 10 and terminal device 20 of a difference detection game system according to the present embodiment.

【0044】

First, when a difference detection game is started, player information to identify a player who plays the game on that terminal device 20 is transmitted from the terminal device 20 to the server 10.

【0045】

Next, in the server 10, a process to set a difficulty level of the difference detection game is carried out (step A11). This difficulty level setting process is executed based on the contents of the player information. This difficulty level setting process will be described later.

**【0046】**

When the process to set a difficulty level ends, a process to transmit signals to control the game from the server 10 to the terminal device 20 is executed. In the game control signals, signals to control progress in the difference detection game according to the difficulty level set in the former step A11 are mainly included.

**【0047】**

Next, data concerning an answer of the difference detection game is transmitted from the terminal device 20 to the server 10. The answer has been inputted by the player, who plays the difference detection game on the terminal device 20, by means of input means provided on the terminal device 20.

**15   【0048】**

When answer data is received, a game result collating process is executed in the server 10 (step A12). The game result collating process refers to a process to collate as to whether or not answer data transmitted from the terminal device 20 is a correct answer and to tabulate its point.

**20   【0049】**

When the game result collating process ends, a game result is transmitted from the server 10 to the terminal device 20.

**【0050】**

25   As in the above, in a difference detection game system according to the present embodiment, transmissions and receptions of data and signals are carried out while the server

10 and terminal device 20 are connected via communication lines.

**【0051】**

[Server processes]

Next, based on a flowchart of Fig. 5, a description will  
5 be given of processes carried out in the server 10 of a difference  
detection game system according to the present embodiment.

**【0052】**

First, the CPU 42 of the server 10 executes a process  
to identify a player (step S11).

10 **【0053】**

The process to identify a player refers to a process to  
judge, based on information (identification number data) to  
identify a player transmitted from the terminal device 20, as  
to whether or not the player is a registered player. In this  
15 process, if a player who plays a difference detection game in  
the terminal device 20 is a player who has already been registered,  
the player is identified, and if he/she is a player who has  
not been registered yet, the player's initial registration is  
carried out. When the process to identify a player ends, the  
20 CPU 42 shifts the process to step S12.

**【0054】**

Next, the CPU 42 executes a process to refer to player  
data (step S12).

**【0055】**

25 The player data refers to data which is recorded for each  
player identified in the former step S11, and this is, concretely,  
data as shown in Fig. 6. For this player data, as shown in

Fig. 6, in addition to identification number data indicating each player, the number of times the player has utilized difference detection games (number of times utilized), the player's age, gender, and number of times winning prizes are recorded.

**【0056】**

Herein, such player data is stored and saved on the hard disk 46 of the server 10. Moreover, in the present embodiment, although players are managed in terms of the items shown in Fig. 6, the present invention is not limited hereto.

**【0057】**

When the process to refer to player data ends, the CPU 42 shifts the process to step S13.

**【0058】**

Next, the CPU 42 executes a process to set a difficulty level (step S13).

**【0059】**

A "difficulty level" refers to an evaluation with an index of easiness in eliciting correct answers in a difference detection game. Herein, a "difficulty level" used in the present embodiment is not expressed as a concrete numerical value but is absolutely evaluated by rules of thumb.

**【0060】**

In the present step's process, the server 10 of the present embodiment carries out, based on the contents of player data referred to in the former step S12, a difficulty level setting to match the player's level. The details of the difficulty

level setting process will be described later. When the difficulty level setting process ends, the CPU 42 shifts the process to step S14.

**【0061】**

5       Next, the CPU 42 executes a game control process (step S14).

**【0062】**

10       The game control process refers to a process to carry out control of the whole difference detection game by transmitting control signals and data from the server 10 to the terminal device 20 based on the difficulty level set in the former step S13. Moreover, this game control process may be carried out in a condition where the server 10 and terminal device 20 are connected via a communication line or may utilize  
15       a game program prepared in the server 10 by downloading from the terminal device 20. When the process to control the game ends, the CPU 42 shifts the process to step S15.

**【0063】**

20       Next, the CPU 42 executes a process to collate a game result (step S15).

**【0064】**

25       The process to collate a game result refers to a process to collate an answer of the difference detection game transmitted from the terminal device 20 with a correct answer prepared in the server 10 and tabulate a point. In addition, the process also includes a process to transmit the collated result and tabulated point to the terminal device 20.



**【0065】**

The CPU 42 records answer data from the terminal device 20, which has been received via the communication interface 45, on the RAM 44, collates the same with correct answer data read out from the hard disk 46, and judges as to whether or not the answer is correct. If it is judged that the answer is correct, a point concerning the correct answer is tabulated by the CPU 42.

**【0066】**

Herein, in a difference detection game system of the present embodiment, a point according to a correct answer is tabulated simply based on a criterion of whether or not the answer is correct, however, the present invention is not limited hereto, and the point may be changed according to the speed at which the player elicits a correct answer, that is, the number of times of reproduction of the reference image and difference image.

**【0067】**

In addition, the tabulated point is, in response to an instruction from the CPU 42, transmitted to the terminal device 20 via the communication interface 45. Concretely, together with a message "Congratulations on your winning ○○ points!", the point is displayed on the display device 65 of the terminal device 20. Moreover, if a difference detection game system such that a player can win a prize according to the point is utilized, a message such as "You won ΔΔ. Congratulations!" may be used.

### 【0068】

When the above processes end, the CPU 42 immediately ends this subroutine.

### 【0069】

5 [Difficulty level setting process]

Next, based on Fig. 7, a description will be given of a subroutine of a difficulty level setting process, which is called up in the former step S13 of Fig. 5.

### 【0070】

10 First, the CPU 42 executes a process to set a prize (step S21).

### 【0071】

The process to set a prize refers to a process to set, based on the player data referred to in the former step S12 (refer to Fig. 5), a prize which fits the identified player's age and gender. In a difference detection game of the present embodiment, if the player answers a correct answer in a difference detection game, he/she can gain a point and/or a prize, and both of these may be given to the player, and either  
20 may be given to the player. When the process to set a prize ends, the CPU 42 shifts the process to step S22.

### 【0072】

Next, a process to judge as to whether or not the number of times utilized is greater than 30 is executed (step S22).

25 【0073】

The "number of times utilized" refers to the number of times in which the player has utilized a difference detection

game system of the present embodiment, and this is, concretely, a numerical value in the item "number of times utilized" of the player data recorded on the hard disk 46 (refer to Fig. 6).

5     **【0074】**

The CPU 42 refers to numerical value data recorded in the item of the concerned player's "number of times utilized" from the hard disk 46 and compares it with a numerical value 30. In the present step, if an affirmative result is obtained, this indicates that "the player frequently utilizes the concerned difference detection game," and at this time, the CPU 42 executes a process of step S23. On the other hand, if a negative result is obtained in the present step, this indicates that "the player does not frequently utilize the concerned difference detection game," and at this time, the CPU 42 executes a process of step S25.

**【0075】**

Herein, in the present embodiment, a numerical value of 30 is employed as a criterion for measuring the greatness of frequency at which the player has utilized the concerned difference detection game system, however, the present invention is not limited hereto, and the criterion can be set by an administrator of the difference detection game system to a desirable value.

25     **【0076】**

Next, the CPU 42 executes a process to shorten a switching time (step S23).

#### 【0077】

A "switching time" means a time for timing where a reference image for reference in a difference detection game and a difference image are switched over. In Fig. 8, shown is a display example when a reference image and a difference image are displayed on the display device 65 of the terminal device 20. Fig. 8 (a) is a display example of a reference image, and Fig. 8 (b) is a display example of a difference image. These images are alternatively displayed on the display device 65 of the terminal device 20.

#### 【0078】

Herein, although, in Fig. 8, the reference image and difference image have been drawn as if they were still images, a difference detection game of the present embodiment assumes that the game is played with animated images. In addition, since effects of the present invention are not necessarily ones that can be obtained only with animated images, the images may be still.

#### 【0079】

In the present step, intervals to alternatively display these are shortened, thus providing a condition where the player can easily elicit a correct answer. The CPU 42 sets a shortened switching time and controls, based thereon, display of the reference image and difference image. When the switching time shortening process ends, the CPU 42 shifts a process to step S24.

#### 【0080】

Next, the CPU 42 executes a process to set a hint image (step S24).

**【0081】**

A "hint image" means an image where marks have been put  
5 in the vicinity of parts where differences exist. A display  
example of a hint image is shown in Fig. 9. In Fig. 9, parts  
which are different in the difference image of Fig. 8 (b) compared  
with the reference image of Fig. 8 (a) are circled. The player  
plays a difference detection game while referring to this hint  
10 image.

**【0082】**

Similar to the image file of a difference detection game,  
the hint image has been recorded on the hard disk 46, and this  
is displayed based on an instruction from the CPU 42. When  
15 the process to set a hint image ends, the CPU 42 immediately  
ends this subroutine.

**【0083】**

By carrying out processes from step S22 to step S24, in  
a difference detection game system of the present embodiment,  
20 it becomes possible to refer to utilization frequency of a player  
who utilizes the same, judge a game player whose utilization  
frequency is high to be a "frequent user," and lower the  
difficulty level of the game.

**【0084】**

25 On the other hand, in step S22, if it is judged that the  
number of times utilized has not exceeded 30, the CPU 42 executes  
a process to judge as to whether or not a number of times winning

prizes/a number of times utilized is greater than 0.05 (step S25).

【0085】

In the present step's process, the CPU 42 tabulates a  
5 number of times winning prizes/a number of times utilized and  
compares the same with a reference value of 0.05, whereby the  
greatness of frequency at which the player has won prizes is  
judged. Concretely, the CPU 42 reads out, out of the table  
shown in Fig. 6, numerical value data recorded in the item "number  
10 of times utilized" and numerical value data recorded in the  
item "number of times winning prizes," carries out, based on  
the values, a process to tabulate a number of times winning  
prizes/a number of times utilized, and compares the same with  
a reference value of 0.05.

15 【0086】

If an affirmative result is obtained in the present step,  
this indicates that the frequency of a player's winning prizes  
is high, and at this time, the CPU 42 shifts the process to  
step S23. On the other hand, if a negative result is obtained  
20 in the present step, this indicates that the frequency of a  
player's winning prizes is low, and at this time, the CPU 42  
shifts the process to step S26.

【0087】

Herein, in the present embodiment, the numerical value  
25 of 0.05 is employed as a criterion for measuring the greatness  
of frequency at which the player has won prizes, however, the  
present invention is not limited hereto, and the criterion may

be set by an administrator of the difference detection game system to a desirable value. Moreover, in the present embodiment, a game condition is changed depending on the state of a player's winning "prizes," however, the present invention  
5 is not limited hereto, and a game condition may be changed by the state of a player's winning "points."

【0088】

Next, the CPU 42 executes a process to extend a switching time (step S26).

10 【0089】

A "switching time" refers to, as described above, a time for timing where a reference image for reference in a difference detection game and a difference image are switched over. In the present step, intervals to alternatively display these are  
15 extended, thus providing a condition where the player cannot easily elicit a correct answer. The CPU 42 sets an extended switching time and controls, based thereon, display of the reference image and difference image. When the switching time extending process ends, the CPU 42 immediately ends this  
20 subroutine.

【0090】

By the above processes, in a difference detection game system of the present embodiment, it becomes possible to change a difference detection game difficulty level according to the  
25 player's utilization frequency and state of winning prizes (points).

【0091】

[Terminal device processes]

Next, with reference to Fig. 10, a description will be given of processes carried out in the terminal device 20.

**【0092】**

5       The CPU 61 of the terminal device 20 executes a process to judge as to whether or not images have been received (step S31).

**【0093】**

10       The images mean a reference image for reference in difference detection and a difference image. These images are, in the present embodiment, animated images as described above and are distributed from the server 10 via a communication line. If it is judged that the images have not been received, the CPU 61 carries out a determination of step S31 again. On the  
15       other hand, if it is judged that the images have been received, the CPU 61 shifts the process to step S32.

**【0094】**

Next, the CPU 61 executes a process to display images (step S32).

20       **【0095】**

The process to display images refers to a process to display images received in the former step S31 on the display device 65 of the terminal device 20. This image displaying process is, as described above, for displaying these images on the  
25       display device 65 in accordance with switching timing determined in the server 10. When the process to display images ends, the CPU 61 shifts the process to step S33.



**【0096】**

Next, a process to judge as to whether or not a game has been finished is executed (step S33).

**【0097】**

5        A determination as to whether or not a game has been finished is carried out based on whether or not the CPU 61 has ended processes to switch over images. In a difference detection game of the present embodiment, a time or a number of times in which images are displayed for the player has been set, and  
10    when this predetermined time or number of times is completed, the process to display images on the display device 65 is finished. Thereby, the CPU 61 detects that the game has been finished. If it is judged that the game has not been finished, the CPU 61 carries out a process of step S33 again. On the other hand,  
15    if it is judged that the game has been finished, the CPU 61 shifts the process to step S34.

**【0098】**

Next, the CPU 61 executes a process to judge as to whether or not an answer has been inputted (step S34).

20    **【0099】**

In a difference detection game of the present invention, as described above, a difference detection game is played with animated images. When a player inputs an answer of the difference detection game, this is carried out in such a manner  
25    as to stop, when a difference is displayed in the animated image, the image at this part and point out the difference part by an operation of the inputting operation part 67.

### 【0 1 0 0】

In the present step, the CPU 61 judges as to whether or not the player playing the difference detection game has inputted an answer of the game through the inputting operation part 67 of the terminal device 20. If it is judged that no answer has been inputted, the CPU 61 carries out a determination of step S34 again. On the other hand, if it is judged that an answer has been inputted, the CPU 61 shifts the process to step S35.

### 【0 1 0 1】

10       Next, the CPU 61 executes a process to transmit an answer (step S35).

### 【0 1 0 2】

In the present step, answer data inputted by the player in step S34 is transmitted via the communication interface circuit 66 of the terminal device 20 to the server 10. When the process to transmit an answer ends, the CPU 61 shifts the process to step S36.

### 【0 1 0 3】

20       Next, the CPU 61 shifts to a standby mode for a game result (step S36).

### 【0 1 0 4】

Herein, the "game result" refers to an incoming game result which is transmitted from the server 10 in response to a player's answer transmitted to the server 10 in the former step S35, that is, whether or not the answer was correct, and a point if the answer was correct. In the present step, the terminal device 20 is in a standby mode for this incoming game result

transmitted from the server 10.

**【0105】**

Next, the CPU 61 executes a process to judge as to whether or not a game result has been received (step S37).

5 **【0106】**

In the present step, if it is judged that a game result has not been received, the CPU 61 returns the process to step S36 again and shifts to a standby mode for a game result. On the other hand, in the present step, if it is judged that a  
10 game result has been received, the CPU 61 displays the game result on the display device 65 of the terminal device 20 then immediately ends this subroutine.

**【0107】**

Moreover, in the above description, difficulty level  
15 setting of a difference detection game is carried out by adjusting the switching time between a reference image and a difference image, however, the present invention is not limited hereto, and difficulty level setting can also be carried out by a method as described in the following, whereby the object  
20 of the present invention can be realized.

**【0108】**

Hereinafter, based on Fig. 11, another embodiment of the difficulty level setting process will be described. In the following embodiment, a description will be given of a difference  
25 detection game system wherein a difference detection game is structured so that a plurality of difference images have been prepared in advance in regard to one reference image and the

game is proceeded by displaying the reference image and plurality of difference images in a lump on the terminal device and selecting a difference image which the player wishes to answer.

【0 1 0 9】

5        Fig. 11 is a flowchart concerning processes executed in the server 10.

【0 1 1 0】

First, the CPU 42 of the server 10 executes a process to refer to the difficulty level data of each image (step S41).

10      【0 1 1 1】

As described above, in a difference detection game of the present embodiment, a plurality of difference images have been prepared. These difference images are different in difficulty levels (easiness in eliciting a correct answer) depending on the types, and as will be described later, points and prizes have been set according to difficulty levels of these. In the present step, the CPU 42 carries out a process to read out difficulty level data provided for each difference image from the hard disk 46. When the process to refer to difficulty level data ends, the CPU 42 shifts the process to step S42.

20      【0 1 1 2】

Next, the CPU 42 executes a process to set a point (step S42).

【0 1 1 3】

25        The point setting process refers to a process to set, based on difficulty level data of each difference image referred to in the former step S41, a point according to the difficulty

level. When the point setting process ends, the CPU 42 shifts the process to step S43.

【0 1 1 4】

Next, the CPU 42 executes a process to set a prize (step S43).

【0 1 1 5】

The process to set a prize refers to a process to set, based on a point of each difference image set in the former step S42, a prize suitable for the point. In a difference detection game system of the present embodiment, if the player answers a correct answer in a difference detection game, he/she can gain a point and/or a prize, and both of these may be given to the player, and either may be given to the player. When the process to set a prize ends, the CPU 42 shifts the process to step S44.

【0 1 1 6】

Next, a process to judge as to whether or not the number of times utilized is greater than 30 is executed (step S44).

【0 1 1 7】

A "number of times utilized" refers to a number of times in which the player has utilized a difference detection game system of the present embodiment, and this is, concretely, a numerical value in the item "number of times utilized" of the player data recorded on the hard disk 46 (refer to Fig. 6).

【0 1 1 8】

The CPU 42 refers to numerical value data recorded in the item of the concerned player's "number of times utilized"

from the hard disk 46 and compares it with a numerical value 30. In the present step, if an affirmative result is obtained in the present step, this indicates that "the player frequently utilizes the concerned difference detection game," and at this time, the CPU 42 executes a process of step S45. On the other hand, if a negative result is obtained in the present step, this indicates that "the player does not frequently utilize the concerned difference detection game," and at this time, the CPU 42 executes a process of step S46.

10     **【0 1 1 9】**

Herein, in the present embodiment, a numerical value of 30 is employed as a criterion for measuring the greatness of frequency at which the player has utilized the concerned difference detection game system, however, the present invention is not limited hereto, and the criterion can be set by an administrator of the difference detection game system to a desirable value.

**【0 1 2 0】**

Next, the CPU 42 executes a process to select an image (step S45).

**【0 1 2 1】**

"Image selection" is a process to determine, out of a plurality of difference images prepared for the player's answering in a difference detection game, which difference image to display for the player. In a difference detection game of the present embodiment, the game's difficulty level is changed according to the utilization frequency of a player utilizing

the same. In a difference detection game where a plurality of difference detection images have been prepared in advance, such a change in difficulty levels is carried out by carrying out a process to select and display, for a so-called "frequent user," an image of a low difficulty level.

【0 1 2 2】

Concretely, the CPU 42 selects, based on difficulty level data referred to in the former step S41, images of a low difficulty level and these are displayed on the display device 65 of the terminal device 20.

【0 1 2 3】

Moreover, in Fig. 12, illustrated is an example where three types of selected difference images are displayed on the display device 65. In Fig. 12, the reference image is displayed in the upper left, and the three types of difference images are displayed in the upper right, lower left, and lower right. Numbers "1," "2," and "3" are used for the respective difference images, and by specifying this number, the player can select a difference image with which he/she plays a difference detection game.

【0 1 2 4】

Herein, although, in Fig. 12, the reference image and difference images have been drawn as if they were still images, a difference detection game of the present embodiment assumes that the game is played with animated images. In addition, since effects of the present invention are not necessarily ones that can be obtained only with animated images, the images may

be still.

**【0 1 2 5】**

By carrying out processes of step S44 and step S45, in a difference detection game system of the present embodiment, it becomes possible to refer to utilization frequency of a player who utilizes the same, judge a game player whose utilization frequency is high to be a "frequent user," and lower the difficulty level of the game.

**【0 1 2 6】**

10 When the process to select an image of step S45 ends, the CPU 42 immediately ends this subroutine.

**【0 1 2 7】**

On the other hand, in step S44, if it is judged that the number of times utilized has not exceeded 30, the CPU 42 executes a process to judge as to whether or not a number of times winning prizes/a number of times utilized is greater than 0.05 (step S46).

**【0 1 2 8】**

In the present step's process, the CPU 42 tabulates a number of times winning prizes/a number of times utilized and compares the same with a reference value of 0.05, whereby the greatness of frequency at which the player has won prizes is judged. Concretely, the CPU 42 reads out, out of the table shown in Fig. 6, numerical data recorded in the item "number of times utilized" and numerical data recorded in the item "number of times winning prizes," carries out, based on the values, a process to tabulate a number of times winning prizes/a



number of times utilized, and compares the same with a reference value of 0.05.

**【0 1 2 9】**

If an affirmative result is obtained in the present step,  
5 this indicates that the frequency of a player's winning prizes is high, and at this time, the CPU 42 shifts the process to step S23. On the other hand, if a negative result is obtained in the present step, this indicates that the frequency of a player's winning prizes is low, and at this time, the CPU 42  
10 shifts the process to step S26.

**【0 1 3 0】**

Herein, in the present embodiment, the numerical value of 0.05 is employed as a criterion for measuring the greatness of frequency at which the player has won prizes, however, the  
15 present invention is not limited hereto, and the criterion may be set by an administrator of the difference detection game system to a desirable value. Moreover, in the present embodiment, a game condition is changed depending on the state of a player's winning "prizes," however, the present invention  
20 is not limited hereto, and a game condition may be changed by the a state of a player's winning "points."

**【0 1 3 1】**

Next, the CPU 42 executes a process to select an image (step S47).

25 **【0 1 3 2】**

"Image selection" is a process to determine, out of a plurality of difference images prepared for the player's

answering in a difference detection game, which difference image to display for the player. Concretely, based on the difficulty level data referred to in the former step S41, the CPU 42 selects an image of a high difficulty level and displays this image  
5 on the display device 65 of the terminal device 20. When the process to select an image ends, the CPU 42 immediately ends this subroutine.

【0 1 3 3】

By the above processes, in a difference detection game  
10 system of the present embodiment, it becomes possible to change a difference detection game difficulty level according to the player's utilization frequency and state of winning prizes (points).

【0 1 3 4】

15 [Embodiment where a game picture which a player played is used as a difference image]

In the above embodiment, as the animated images used as difference images, animated images formed to use in a difference detection game system of the present invention are used, however,  
20 a difference detection game of the present invention may be performed by letting a player play some game (for example, an action game such as a racing game) in advance and then combining a reproduced picture thereof with a difference image. Hereinafter, a description will be given for an embodiment where  
25 after a player plays a racing game, the player plays a difference detection game by means of a reproduced image thereof.

【0 1 3 5】

Fig. 13 is a timing chart for explaining, in a difference detection game system of the present embodiment where a picture of a game played by a player is used, an outline of signal exchanges between the server 10 and terminal device 20.

5     【0136】

First, from the server 10 to the terminal device 20, a racing game is distributed via the Internet.

      【0137】

On the terminal device 20, a player plays the racing game distributed from the server 10 and transmits data of the game contents and player information to identify the player to the server 10.

      【0138】

Next, in the server 10, a process to set a difficulty level of the difference detection game is executed (step A13). This difficulty level setting process is executed based on the contents of the player information. This difficulty level setting process will be described later.

      【0139】

Next, in the server 10, a process to create an image is carried out (step A14). In this process, a difference image is created based on incoming game contents data transmitted from the player's terminal device 20.

      【0140】

When the process to create an image ends, a process to transmit signals to control the game from the server 10 to the terminal device 20 is executed. In the game control signals,

signals to control progress in the difference detection game according to the difficulty level set in the former step A13 are mainly included.

**【0 1 4 1】**

5       Next, data concerning an answer of the difference detection game is transmitted from the terminal device 20 to the server 10. The answer has been inputted by the player, who plays the difference detection game on the terminal device 20, by means of input means provided on the terminal device  
10   20.

**【0 1 4 2】**

When answer data is received, a game result collating process is executed in the server 10 (step A15). The game result collating process refers to a process to collate as to whether  
15   or not answer data transmitted from the terminal device 20 is a correct answer and to tabulate its point.

**【0 1 4 3】**

When the game result collating process ends, a game result is transmitted from the server 10 to the terminal device 20.

20   **【0 1 4 4】**

As in the above, in a difference detection game system according to the present embodiment, transmissions and receptions of data and signals are carried out while the server 10 and terminal device 20 are connected via a communication  
25   line.

**【0 1 4 5】**

Next, based on Fig. 14, a description will be given of

processes to be carried out in the server 10 when a difference detection game is played based on an image of a racing game which has been played by a player.

【0146】

5 First, the CPU 42 of the server 10 carries out a process to distribute a game (step S51).

【0147】

10 In the present step's process, the CPU 42 distributes racing game data to the terminal device 20 via the communication interface 45 and the Internet. A player who has received the distributed racing game plays this game and transmits a game result to the server 10. When the process to distribute a game ends, the CPU 42 shifts the process to step S52.

【0148】

15 Next, the CPU 42 executes a process to judge as to whether or not a game result has been received (step S52).

【0149】

20 As described above, from the player who played a racing game on the terminal device 20, data related to its game result is transmitted to the server 10. The CPU 42 judges as to whether or not this game result has been received. If it is judged that the game result has not been received, the CPU 42 returns to step S52 again. On the other hand, if it is judged that the game result has been received, the CPU 42 shifts the process  
25 to step S53.

【0150】

Next, the CPU 42 executes a process to identify the player

(step S53).

**【0151】**

The process to identify a player refers to a process to judge, based on information (identification number data) to  
5 identify a player transmitted together with a game result from the terminal device 20, as to whether or not the player is a registered player. In this process, if a player who plays a difference detection game in the terminal device 20 is a player who has already been registered, the player is identified, and  
10 if he/she is a player who has not been registered yet, the player's initial registration is carried out. When the process to identify a player ends, the CPU 42 shifts the process to step S12.

**【0152】**

15 Next, the CPU 42 executes a process to refer to player data (step S54).

**【0153】**

The player data refers to data which is recorded for each player identified in the former step S53, and this is, concretely,  
20 data as shown in Fig. 6. For this player data, in addition to identification number data indicating each player, the number of times the player has utilized difference detection games (number of times utilized), the player's age, gender, and number of times winning prizes are recorded.

25 **【0154】**

Herein, such player data is stored and saved on the hard disk 46 of the server 10. Moreover, in the present embodiment,

although players are managed in terms of the items shown in Fig. 6, the present invention is not limited hereto. When the process to refer to player data ends, the CPU 42 shifts the process to step S55.

5     【0155】

Next, the CPU 42 executes a process to set a difficulty level (step S55).

      【0156】

10     In the present step's process, the server 10 of the present invention carries out, based on the contents of player data referred to in the former step S54, a difficulty level setting to match the player's level. Concerning the details of the difficulty level setting process, the method as described above can be mentioned. When the difficulty level setting process  
15     ends, the CPU 42 shifts the process to step S56.

      【0157】

Next, the CPU 42 executes a process to create an image (step S56).

      【0158】

20     The process to create an image refers to, as described above, a process to create a difference image based on the game result of a racing game received from the terminal device 20 in the former step S52. A difference image is created by carrying out, based on a game image of a racing game played  
25     by the player, a process such as, for example, to compose a difference image or to make its racing course different from the course of the former game.

#### 【0159】

In Fig. 15, examples of created difference images are shown. Fig. 15 (a) is a picture image of the racing game played by a player. On the other hand, Fig. 15 (b) is an example of  
5 a difference image created based thereon. In Fig. 15 (b), by combining a factitious object image with the racing course, a difference image is created. Based on the difference image created as such, the player carries out a difference detection game. When the process to create a difference image ends, the  
10 CPU 42 shifts the process to step S57.

#### 【0160】

Next, the CPU 42 executes a game control process (step S57).

#### 【0161】

15 The game control process refers to a process to carry out control of the whole difference detection game by transmitting control signals and data from the server 10 to the terminal device 20 based on the difficulty level set in the former step S55. Moreover, this game control process may  
20 be carried out in a condition where the server 10 and terminal device 20 are connected via a communication line or may utilize a game program prepared in the server 10 by downloading from the terminal device 20. When the process to control the game ends, the CPU 42 shifts the process to step S58.

#### 25 【0162】

Next, the CPU 42 executes a process to collate a game result (step S58).



【0163】

The process to collate a game result includes a process to collate an answer of the difference detection game transmitted from the terminal device 20 with a correct answer prepared in the server 10 and tabulate a point. In addition, the process also includes a process to transmit the collated result and tabulated point to the terminal device 20.

【0164】

The CPU 42 records answer data from the terminal device 20, which has been received via the communication interface 45, in the RAM 44, collates the same with correct answer data read out from the hard disk 46, and judges as to whether or not the answer is correct. If it is judged that the answer is correct, a point concerning the correct answer is tabulated by the CPU 42.

【0165】

Herein, in a difference detection game system of the present embodiment, a point according to a correct answer is tabulated simply based on a criterion of whether or not the answer is correct, however, the present invention is not limited hereto, and the point may be changed according to the speed at which the player elicits a correct answer, that is, the number of times of reproduction of the reference image and difference image.

25 【0166】

In addition, the tabulated point is, in response to an instruction from the CPU 42, transmitted to the terminal device

20 via the communication interface 45. Concretely, together with a message "Congratulations on your winning ○○ points!", the point is displayed on the display device 65 of the terminal device 20. Moreover, if a difference detection game system  
5 such that a player can win a prize according to the point is utilized, a message such as "You won ΔΔ. Congratulations!" may be used.

【0 1 6 7】

When the above processes end, the CPU 42 immediately ends  
10 this subroutine.

【0 1 6 8】

By carrying out a series of processes as described above, it becomes possible to let a player play two types of games, namely, to let a player play some type of game and let the player  
15 play a difference detection game by means of a reproduced picture of that game. Thereby, compared to a conventional game composed of a single game, the player can experience twofold enjoyment.

【0 1 6 9】

In addition, a difference detection game of the present  
20 embodiment can also be played as a strategy for promoting sales of a game which is played by a player in advance.

【0 1 7 0】

<<Second embodiment>>

In the above embodiment, a description is given on the  
25 premise that a terminal device such as a personal computer is used as a device to execute a difference detection game system of the present invention, however, the present invention is

not limited hereto, and a difference detection game may be played on a portable terminal device such as a cellular telephone.

【0 1 7 1】

Hereinafter, by means of Fig. 16 through Fig. 20, a  
5 description will be given to an embodiment where a difference detection game system of the present invention is implemented by a cellular telephone.

【0 1 7 2】

[Cellular telephone configuration]

10 A block diagram showing a configuration of a cellular telephone of a part of a difference detection game system of the present embodiment is shown in Fig. 16.

【0 1 7 3】

As shown in Fig. 16, to a data bus of the cellular telephone  
15 30 according to the present embodiment, connected are a CPU 51, a memory 52, an RF (transmitting/receiving circuit part) 55 for signal transmissions and receptions with its base station, a base band processing part 56 for converting an RF signal received at the transmitting/receiving circuit part 55 to a  
20 base band signal and converting a base band signal to be transmitted to an RF signal, an input/output part 57 being an interface with a microphone 56 and a speaker 59, a display 54 composed of a liquid crystal panel or the like, and an inputting operation part 53 formed of a keyboard and a jog dial and the  
25 like.

【0 1 7 4】

The CPU 51 is structured so as to carry out various actions

according to action programs stored in the memory 52 and controls the respective circuit portions according to such actions. The contents of various processes of the CPU 51 are displayed on the display 54 as necessary.

5     【0 1 7 5】

        In addition, the CPU 51 converts various types of information (character information, information on a specific selection, etc.) inputted by a user's operation of the inputting operation part 53 to packet data, and then transmits the same  
10   to the server 10 via the base band processing part 56 and RF (transmitting/receiving circuit part) 55.

        【0 1 7 6】

        In addition, the CPU 51 takes in an RF signal, on which has been superimposed packetized data information transmitted  
15   from the server 10 via a packet network/PDC network (not shown), via the transmitting/receiving circuit part 55 and the base band processing part 56, pieces the packetized data together so as to return to their original data form, and then displays the same on the display 54.

20   【0 1 7 7】

        Thus, a user of the cellular telephone 30 can transfer various types of information with the server 10. Upon request (a request concerning a required amount of information and frequency) of the cellular telephone 30, the server 10 transmits  
25   a difference detection game to the cellular telephone 30.

        【0 1 7 8】

        [Action]

Next, based on a timing chart of Fig. 17, a description will be given of actions carried out between the server 10 and cellular telephone 30 of a difference detection game system according to the present embodiment.

5      **【0179】**

First, when a difference detection game is started, player information to identify a player who plays the game on that cellular telephone 30 is transmitted from the cellular telephone 30 to the server 10.

10     **【0180】**

Next, in the server 10, a process to set a difficulty level of the difference detection game is carried out (step A16). This difficulty level setting process is executed based on the contents of the player information. This difficulty level setting process is carried out based on the method as described above.

**【0181】**

When the process to set a difficulty level ends, a process to transmit signals to control the game from the server 10 to cellular telephone 30 is executed. In the game control signals, signals to control progress in the difference detection game according to the difficulty level set in the former step A16 are mainly included.

**【0182】**

25      Next, in the cellular telephone 30, an image operating process is carried out (step A17). The image operating process is, as will be described later, a process required when the

player plays a difference detection game by means of a small display screen of the cellular telephone 30. The details of the image operating process will be described later.

【0183】

5       Next, data concerning an answer of the difference detection game is transmitted from the cellular telephone 30 to the server 10. The answer has been inputted by the player, who plays the difference detection game on the cellular telephone 30, by means of an input operating part 53 provided on the cellular  
10   telephone 30.

【0184】

When answer data is received, a game result collating process is executed in the server 10 (step A18). The game result collating process refers to a process to collate as to whether  
15   or not answer data transmitted from the cellular telephone 30 is a correct answer and to tabulate its point.

【0185】

When the game result collating process ends, a game result is transmitted from the server 10 to the cellular telephone  
20   30.

【0186】

As in the above, in a difference detection game system according to the present embodiment, transmissions and receptions of data and signals are carried out while the server  
25   10 and cellular telephone 30 are connected via the a communication line.

【0187】

[Server processes]

Next, based on a flowchart of Fig. 18, a description will be given of processes carried out in the server 10 of a difference detection game system according to the present embodiment.

5     【0188】

First, the CPU 42 of the server 10 executes a process to identify a player (step S61).

      【0189】

10     The process to identify a player refers to a process to judge, based on information (identification number data) to identify a player transmitted from the cellular telephone 30, as to whether or not the player is a registered player. In this process, if a player who plays a difference detection game in the cellular telephone 30 is a player who has already been  
15     registered, the player is identified, and if he/she is a player who has not been registered yet, the player's initial registration is carried out. When the process to identify a player ends, the CPU 42 shifts the process to step S62.

      【0190】

20     Next, the CPU 42 executes a process to refer to player data (step S62).

      【0191】

25     The player data refers to data which is recorded for each player identified in the former step S61, and this is, concretely, as shown in the foregoing Fig. 6. In this player data, as shown in Fig. 6, in addition to identification number data indicating each player, the number of times the player has utilized

difference detection games (number of times utilized), the player's age, gender, and number of times winning prizes have been recorded.

【0192】

5        Herein, such player data is stored and saved on the hard disk 46 of the server 10. Moreover, in the present embodiment, although players are managed in terms of the items shown in Fig. 6, the present invention is not limited hereto.

【0193】

10       When the process to refer to player data ends, the CPU 42 shifts the process to step S63.

【0194】

Next, the CPU 42 executes a process to set a difficulty level (step S63).

15       【0195】

A "difficulty level" refers to an evaluation with an index of easiness in eliciting correct answers in a difference detection game. Herein, a "difficulty level" used in the present embodiment is not expressed as a concrete numerical value but is absolutely evaluated by rule of thumb.

20

【0196】

In the present step's process, the server 10 of the present embodiment carries out, based on the contents of player data referred to in the former step S62, a difficulty level setting to match the player's level. The details of the difficulty level setting process will be described later. When the difficulty level setting process ends, the CPU 42 shifts the

25



process to step S64.

**【0197】**

Next, the CPU 42 executes a game control process (step S64).

5     **【0198】**

The game control process refers to a process to carry out control of the whole difference detection game by transmitting control signals and data from the server 10 to the cellular telephone 30 based on the difficulty level set in the former step S63. Moreover, this game control process may be carried out in a condition where the server 10 and cellular telephone 30 are connected via a communication line or may utilize a game program prepared in the server 10 by downloading from the cellular telephone 30. When the process to control the game ends, the CPU 42 shifts the process to step S65.

**【0199】**

Next, the CPU 42 executes a process to collate a game result (step S65).

**【0200】**

20     The process to collate a game result includes a process to collate an answer of the difference detection game transmitted from the cellular telephone 30 with a correct answer prepared in the server 10 and tabulate a point. In addition, the process also includes a process to transmit the collated result and tabulated point to the cellular telephone 30.

**【0201】**

The CPU 42 records answer data from the cellular telephone

30, which has been received via the communication interface 45, in the RAM 44, collates the same with correct answer data read out from the hard disk 46, and judges as to whether or not the answer is correct. If it is judged that the answer  
5 is correct, a point concerning the correct answer is tabulated by the CPU 42.

#### 【0202】

Herein, in a difference detection game system of the present embodiment, a point according to a correct answer is  
10 tabulated simply based on a criterion of whether or not the answer is correct, however, the present invention is not limited hereto, and the point may be changed according to the speed at which the player elicits a correct answer, that is, the number of times of reproduction of the reference image and difference  
15 image.

#### 【0203】

In addition, the tabulated point is, in response to an instruction from the CPU 42, transmitted to the cellular telephone 30 via the communication interface 45. Concretely,  
20 together with a message "Congratulations on your winning ○ ○ points!," the point is displayed on the display 54 of the cellular telephone 30. Moreover, if a difference detection game system such that a player can win a prize according to the point is utilized, a message such as "You won ΔΔ.  
25 Congratulations!" may be used.

#### 【0204】

When the above processes end, the CPU 42 immediately ends

this subroutine.

**【0205】**

[Cellular telephone processes]

Next, with reference to Fig. 19, a description will be  
5 given of processes carried out in the cellular telephone 30.

**【0206】**

The CPU 51 of the cellular telephone 30 executes a process  
to judge as to whether or not images have been received (step  
S71).

10 **【0207】**

The images mean a reference image for reference in  
difference detection and a difference image. These images are,  
in the present embodiment, animated images as described above  
and are distributed from the server 10 via a communication line.  
15 If it is judged that the images have not been received, the  
CPU 51 carries out a determination of step S71 again. On the  
other hand, if it is judged that the images have been received,  
the CPU 51 shifts the process to step S72.

**【0208】**

20 Next, the CPU 51 executes a process to display images  
(step S72).

**【0209】**

The process to display images refers to a process to display  
images received in the former step S71 on the display 54 of  
25 the cellular telephone 30. This image displaying process is,  
as described above, for displaying these images on the display  
54 in accordance with switching timing determined in the server

10. When the process to display images ends, the CPU 51 shifts the process to step S73.

**【0 2 1 0】**

Next, a process to judge as to whether or not a game has  
5 been finished is executed (step S73).

**【0 2 1 1】**

A determination as to whether or not a game has been finished is carried out based on whether or not the CPU 51 has ended processes to switch over images. In a difference detection  
10 game of the present embodiment, a time or a number of times in which images are displayed for the player has been set, and when this predetermined time or number of times is completed, the process to display images on the display 54 is finished. Thereby, the CPU 51 detects that the game has been finished.  
15 If it is judged that the game has not been finished, the CPU 51 carries out a process of step S73 again. On the other hand, if it is judged that the game has been finished, the CPU 51 shifts the process to step S74.

**【0 2 1 2】**

20 Next, the CPU 51 executes an image operating process (step S74).

**【0 2 1 3】**

The image operating process is, as described above, a process carried out since the display screen that corresponds  
25 to the display 54 of the cellular telephone 30 is too small to play a difference detection game, and is carried out by a player's operation of the inputting operation part 53.

#### 【0214】

In Fig. 20, examples of difference images displayed on the display 54 of the cellular telephone 30 are shown. Fig. 20 (a) is an example where a difference image is displayed on the display 54. As shown in Fig. 20 (a), a cursor 71 is displayed in the difference image. The player can shift this cursor 71 by operating the inputting operation part 53 of the cellular telephone 30 and can display the screen in the vicinity of the cursor 71 in an enlarged manner further by operating to depress the inputting operation part 53. Fig. 20 (b) is a display example when the difference image is enlarged at a cursor 71 position shown in Fig. 20 (a).

#### 【0215】

By such a configuration, in a difference detection game system of the present embodiment, a difference detection game can be enjoyed even on a cellular telephone with a small display screen. In addition, by enabling playing a difference detection game on portable terminal devices including cellular telephones, it becomes possible that a player enjoys playing the game anytime anywhere when he/she likes.

#### 【0216】

Next, the CPU 51 executes a process to judge as to whether or not an answer has been inputted (step S75).

#### 【0217】

In a difference detection game of the present invention, as described above, a difference detection game is played with animated images. When a player inputs an answer of the

difference detection game, this is carried out in such a manner as to stop, when a difference is displayed in the animated image, the image at this part and point out the difference part by an operation of the inputting operation part 53.

5     **【0 2 1 8】**

In the present step, the CPU 51 judges as to whether or not the player playing the difference detection game has inputted an answer of the game through the inputting operation part 53 of the cellular telephone 30. If it is judged that no answer  
10 has been inputted, the CPU 51 carries out a determination of step S75 again. On the other hand, if it is judged that an answer has been inputted, the CPU 51 shifts the process to step S76.

**【0 2 1 9】**

15     Next, the CPU 51 executes a process to transmit an answer (step S76).

**【0 2 2 0】**

In the present step, answer data inputted by the player in step S75 is transmitted to the server 10. When the process  
20 to transmit an answer ends, the CPU 51 shifts the process to step S77.

**【0 2 2 1】**

Next, the CPU 51 shifts to a standby mode for a game result (step S77).

25     **【0 2 2 2】**

Herein, the "game result" refers to an incoming game result which is transmitted from the server 10 in response to a player's

answer transmitted to the server 10 in the former step S76,  
that is, whether or not the answer was correct, and a point  
if the answer was correct. In the present step, the cellular  
telephone 30 is in a standby mode for this incoming game result  
5 transmitted from the server 10.

【0 2 2 3】

Next, the CPU 51 executes a process to judge as to whether  
or not a game result has been received (step S78).

【0 2 2 4】

10 In the present step, if it is judged that a game result  
has not been received, the CPU 51 returns the process to step  
S77 again and shifts to a standby mode for a game result. On  
the other hand, in the present step, if it is judged that a  
game result has been received, the CPU 51 displays the game  
15 result on the display 54 of the cellular telephone 30 then  
immediately ends this subroutine.

【0 2 2 5】

By carrying out the above processes, a difference  
detection game system of the present invention can be of a  
20 configuration where a cellular telephone user can play a  
difference detection game anytime anywhere. Moreover, in the  
above-described embodiment, a description has been given in  
a case where a cellular telephone is used in a difference  
detection game system of the present invention, however, the  
25 present invention is not limited hereto, and a portable terminal  
device such as a PDA may be used.

【0 2 2 6】

### **[Effect of the Invention]**

According to the present invention, a game server can transmit and receive data to and from a plurality of user terminal devices via a communication line. In addition, it may execute  
5 a difference detection game on displays provided in the user terminal devices. Furthermore, it may be provided with point providing means which provides, if it is judged that an answer from a player is a correct answer, a point on the player. Then, it becomes possible to provide image switching means for  
10 switching and alternatively displaying a reference image for reference in difference detection and a difference image on the display. Or, a game server may make the display display a reference image for reference in error detection. In addition, it is possible to provide image display means for simultaneously  
15 displaying a plurality of difference images for difference detection with reference to this reference image.

### **[Brief Description of the Drawings]**

[Fig. 1] It is a schematic diagram showing an outline of the whole system for a difference detection game according  
20 to the present invention.

[Fig. 2] It is a block diagram showing a configuration of a game server of a part of a system for a difference detection game according to an embodiment of the present invention.

[Fig. 3] It is a block diagram showing a configuration  
25 of a terminal device of a part of a system for a difference detection game according to an embodiment of the present invention.



[Fig. 4] It is a timing chart for explaining data exchanges between a server and a terminal device of a system for a difference detection game according to an embodiment of the present invention.

5        [Fig. 5] It is a flowchart of a control process executed by a server according to an embodiment of the present invention.

[Fig. 6] It is an example of a player information database recorded on a server of an embodiment of the present invention.

10       [Fig. 7] It is a flowchart of a control process executed by a server according to an embodiment of the present invention.

[Fig. 8] It is an example of a reference image displayed on a display of a terminal device according to an embodiment of the present invention.

15       [Fig. 9] It is an example of an image displayed on a display of a terminal device according to an embodiment of the present invention.

[Fig. 10] It is a flowchart of a control process executed by a terminal device according to an embodiment of the present invention.

20       [Fig. 11] It is a flowchart of a control process executed by a server according to an embodiment of the present invention.

[Fig. 12] It is an example of images displayed on a display of a terminal device according to an embodiment of the present invention.

25       [Fig. 13] It is a timing chart for explaining data exchanges between a server and a terminal device of a system for a difference detection game according to an embodiment of the present

invention.

[Fig. 14] It is a flowchart of a control process executed by a server according to an embodiment of the present invention.

5 [Fig. 15] It is an example of a reference image displayed on the display of a terminal device according to an embodiment of the present invention.

[Fig. 16] It is an example of a difference images displayed on the display of a terminal device according to an embodiment of the present invention.

10 [Fig. 17] It is a block diagram showing a configuration of a cellular telephone of a part of a system for a difference detection game according to an embodiment of the present invention.

[Fig. 18] It is a timing chart for explaining data exchanges  
15 between a server and a cellular telephone of a system for a difference detection game according to an embodiment of the present invention.

[Fig. 18] It is a flowchart of a control process executed by a server of an embodiment of the present invention.

20 [Fig. 19] It is a flowchart of a control process executed by a cellular telephone of an embodiment of the present invention.

[Fig. 20] It is an example of a difference image displayed on a display of a cellular telephone according to an embodiment of the present invention.

25 **[Description of Numerical reference]**

10 server

20 terminal device

25 portable terminal device  
30 cellular telephone  
42,51,61 CPU  
43,62 ROM  
5 44,63 RAM  
45 communication interface  
46 hard disk  
53,67 inputting operation part  
54 display  
10 55 RF  
66 communication interface circuit

**[Document title] Abstract**

**[Abstract]**

**[Problem to be Solved]** To provide a difference detection game which enriches variations in this difficulty level setting and enables a player to enjoy without growing tired of it.

**[Solution]** A game server which allows a player to play a difference detection game on a display of a terminal device connected to the server via a communication line and provides, when the player elicits a correct answer in the difference detection game, a point on the player and switches and alternatively displays a reference image for reference in difference detection and a difference image on a display of a terminal device is provided.

**[Selected Drawing] Fig. 7**

Fig. 1

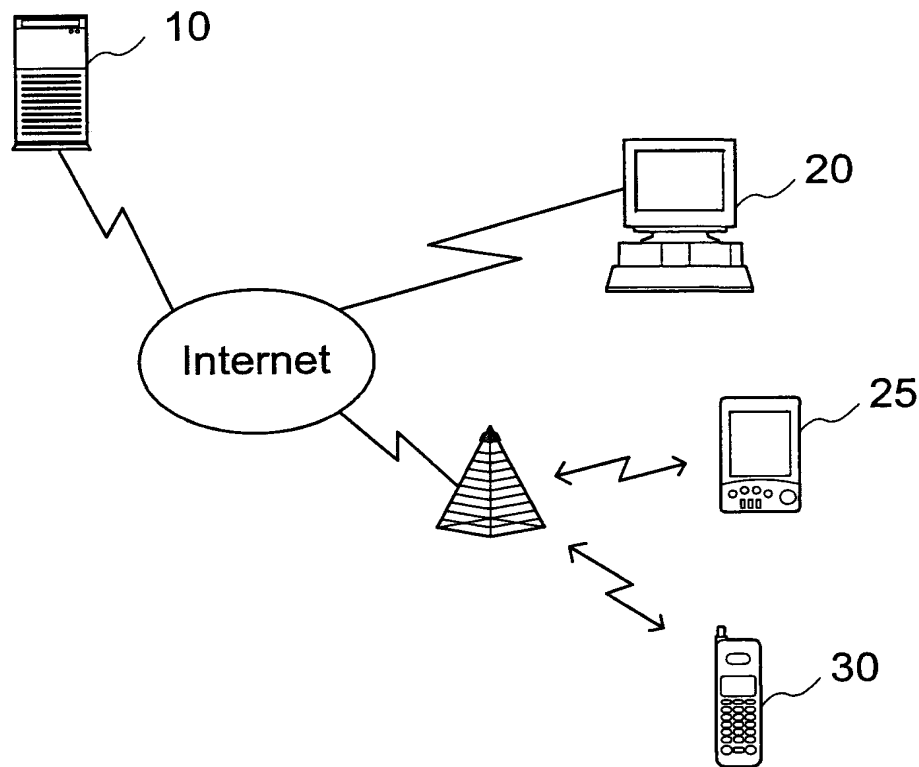


Fig. 2

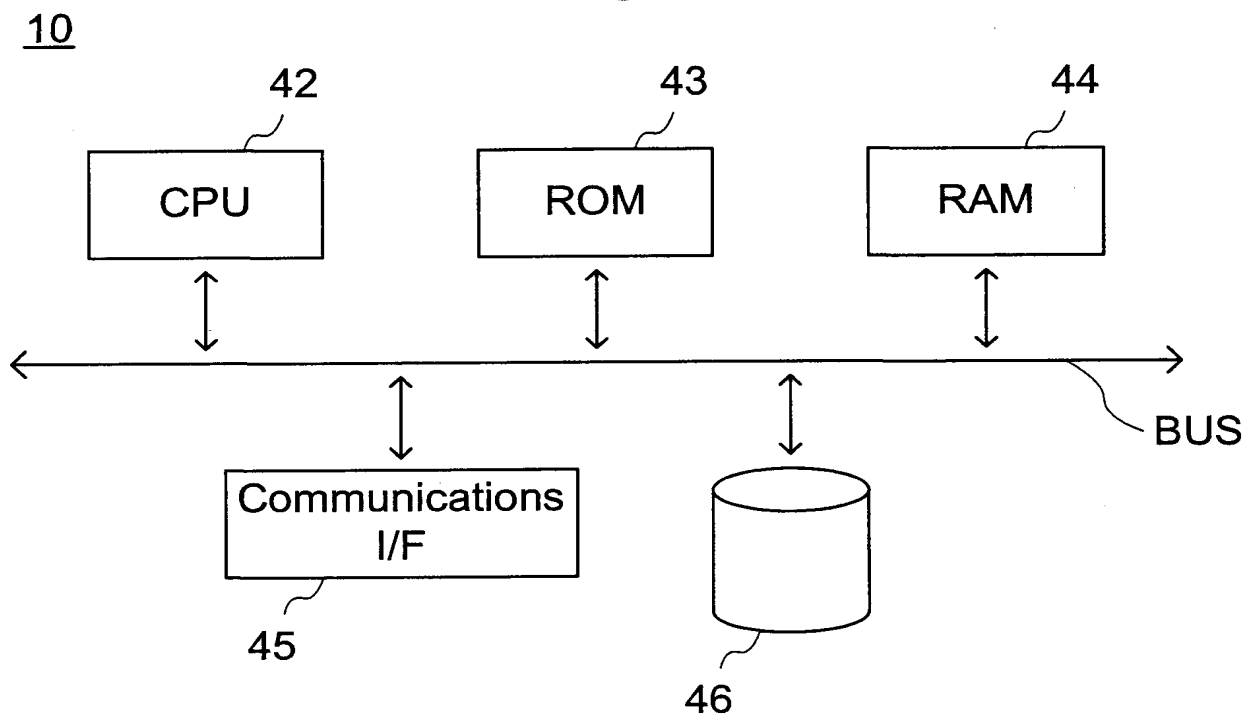


Fig. 3

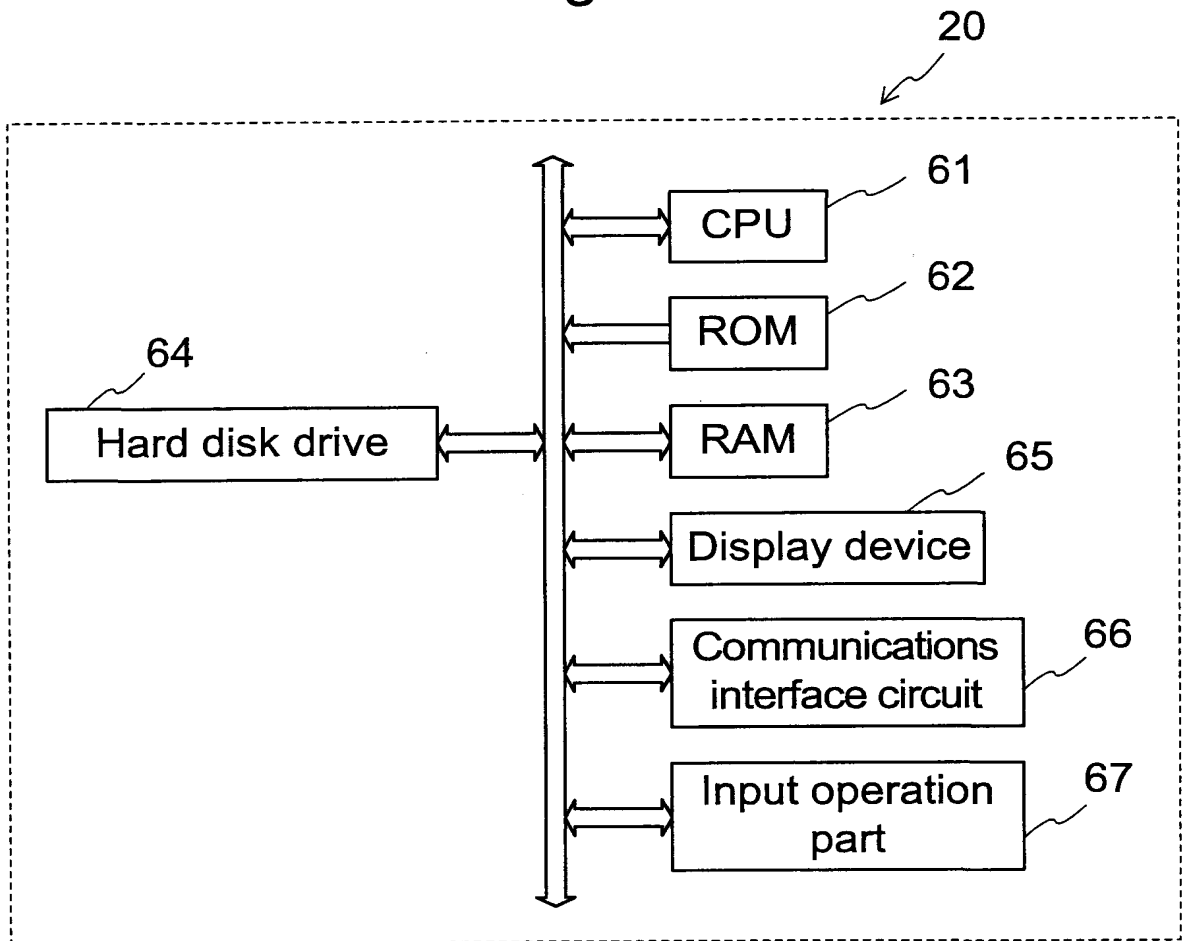


Fig. 4

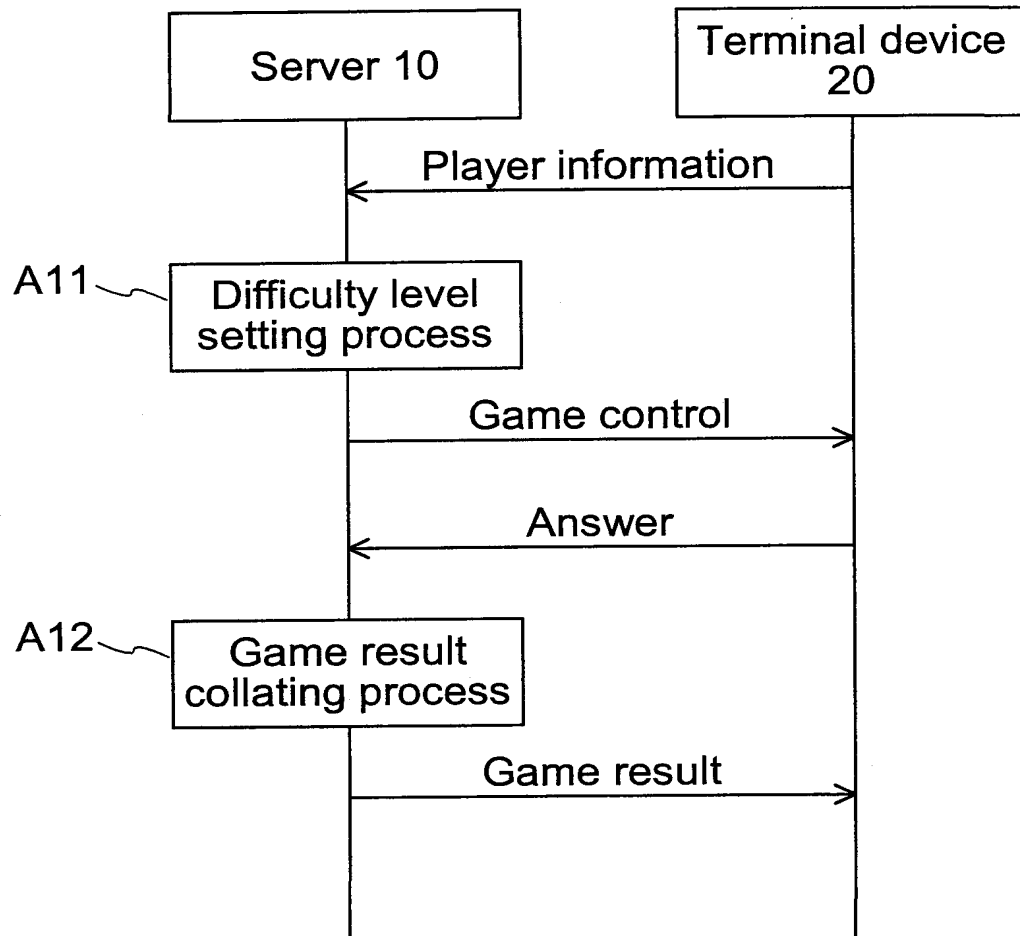


Fig. 5

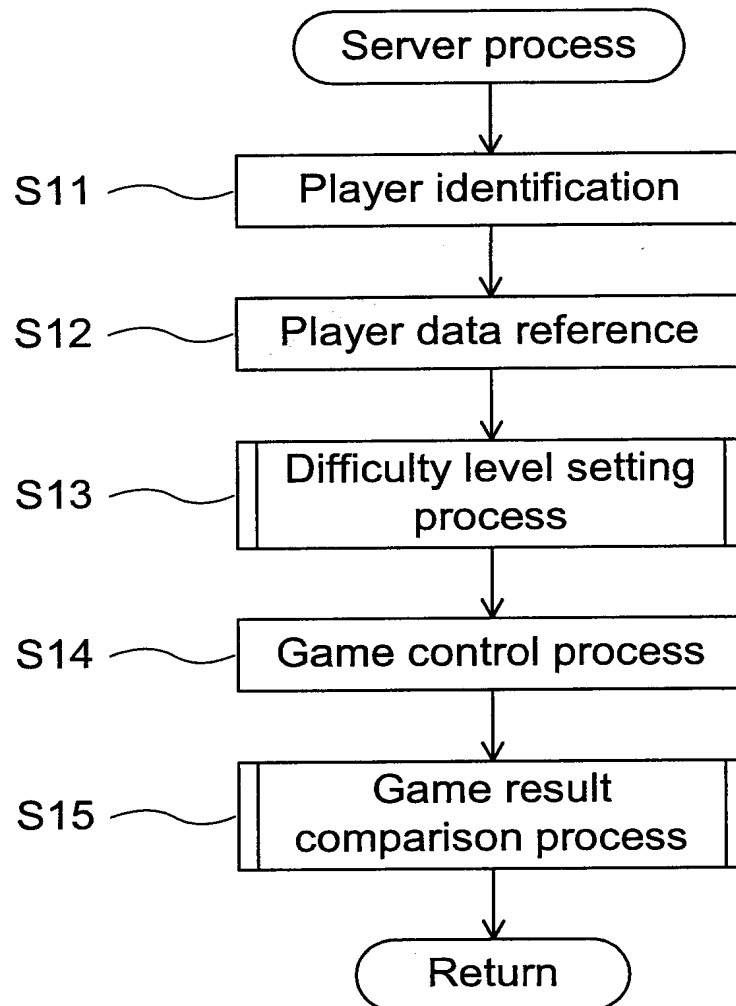




Fig. 6

Player	Number of times played	Age	Gender	Number of times winning prize
01-0001	72	21	0	8
01-0007	65	23	1	3
03-0013	51	31	1	7
05-0143	31	19	0	9
05-0213	28	42	1	1
07-1311	7	49	1	0

Fig. 7

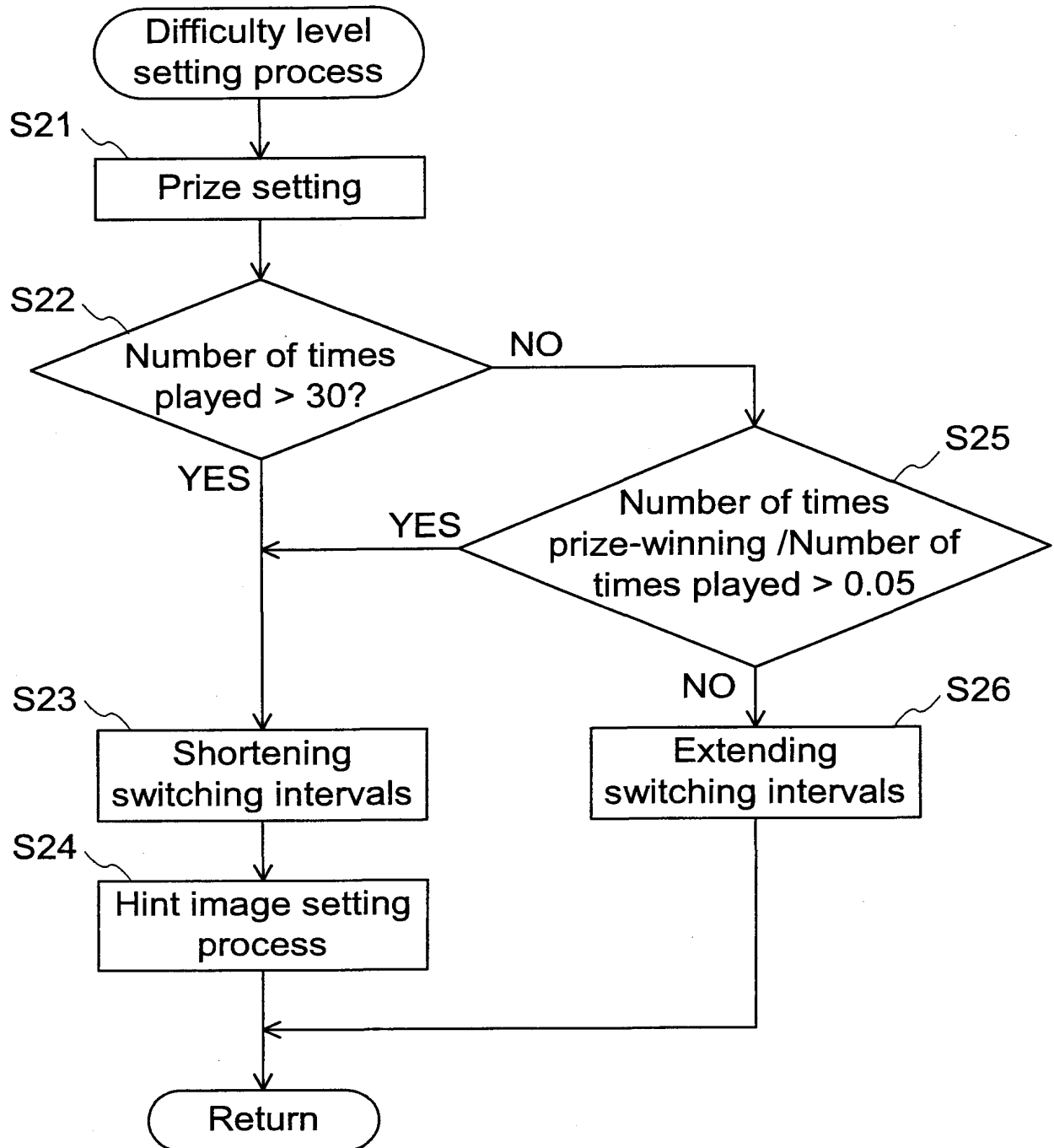


Fig. 8 (a)

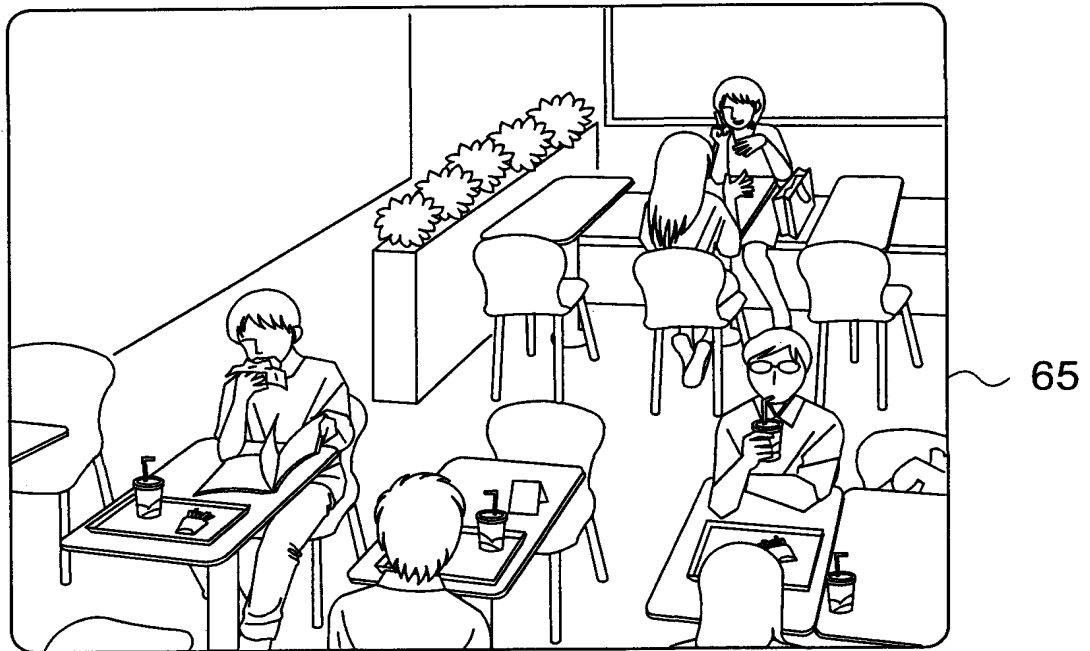


Fig. 8 (b)

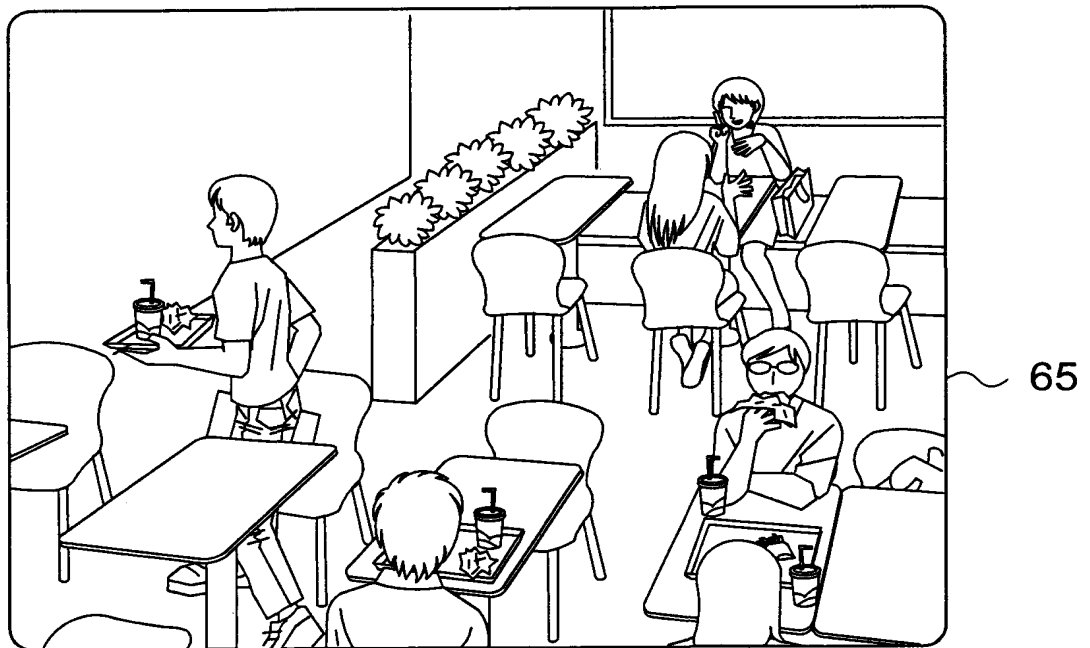


Fig. 9

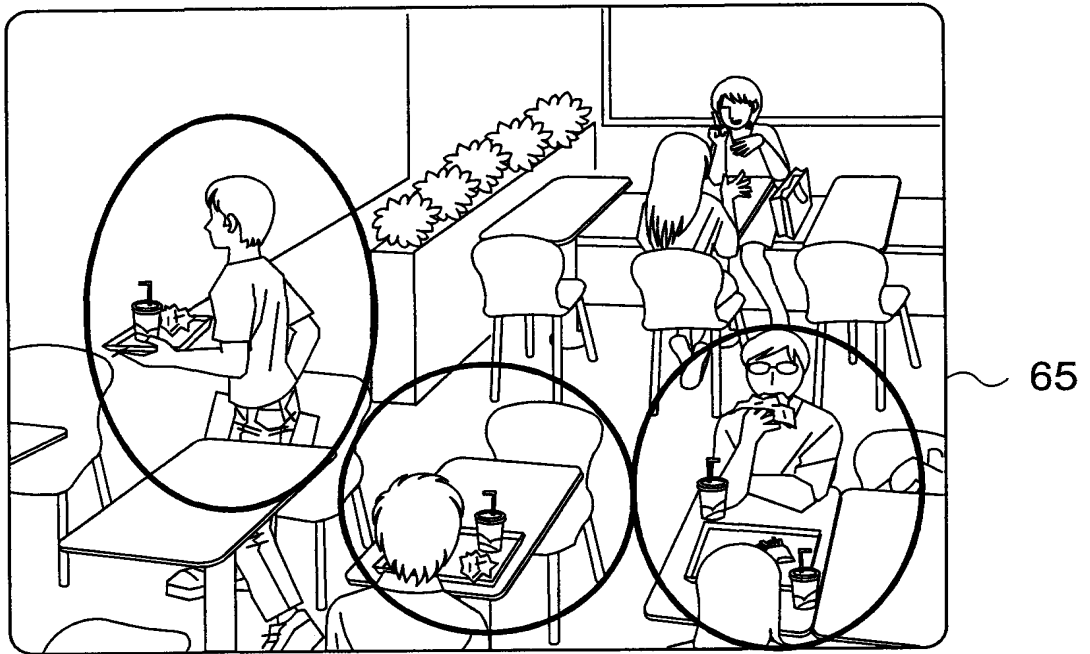


Fig. 10

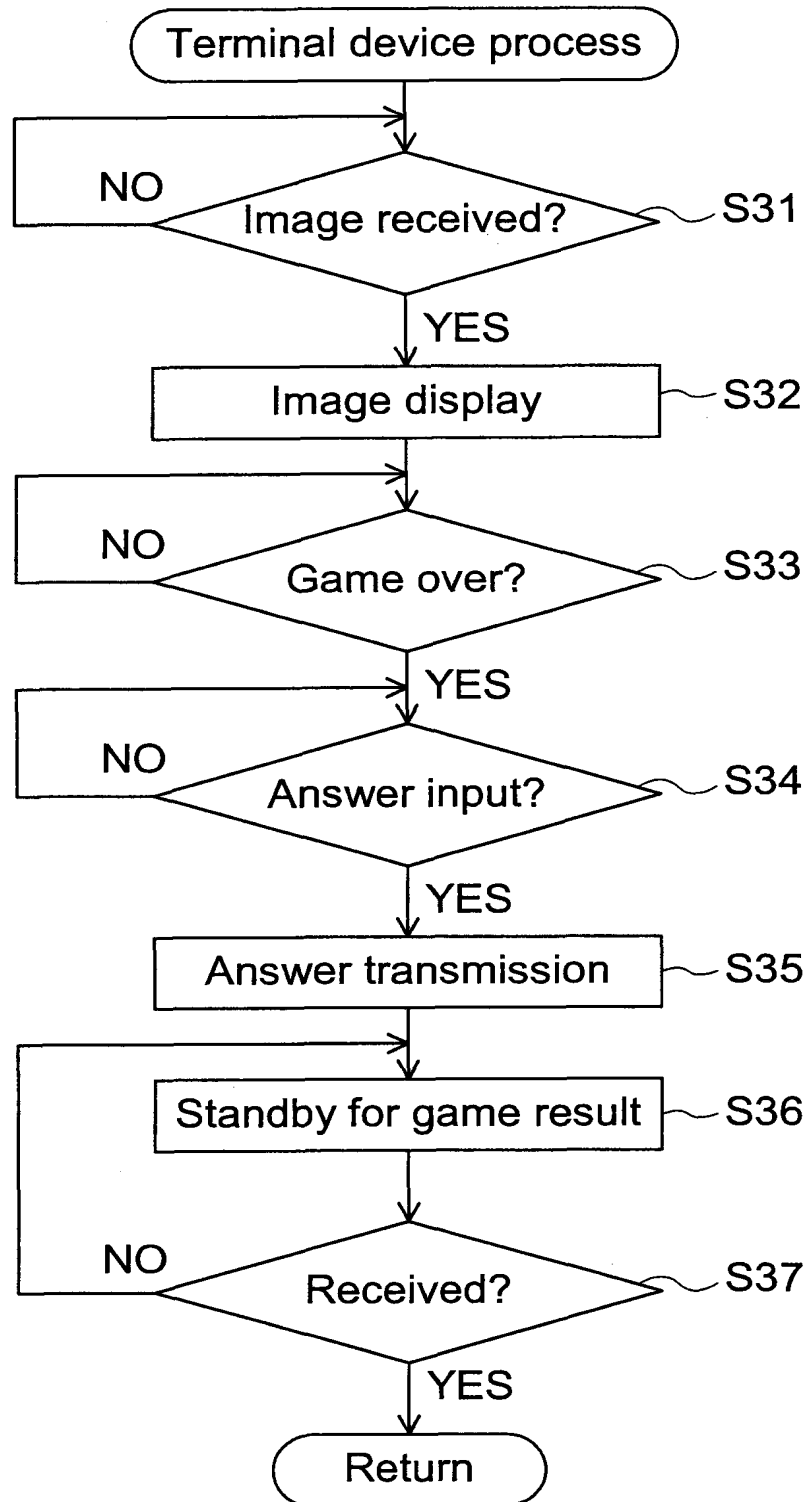


Fig. 11

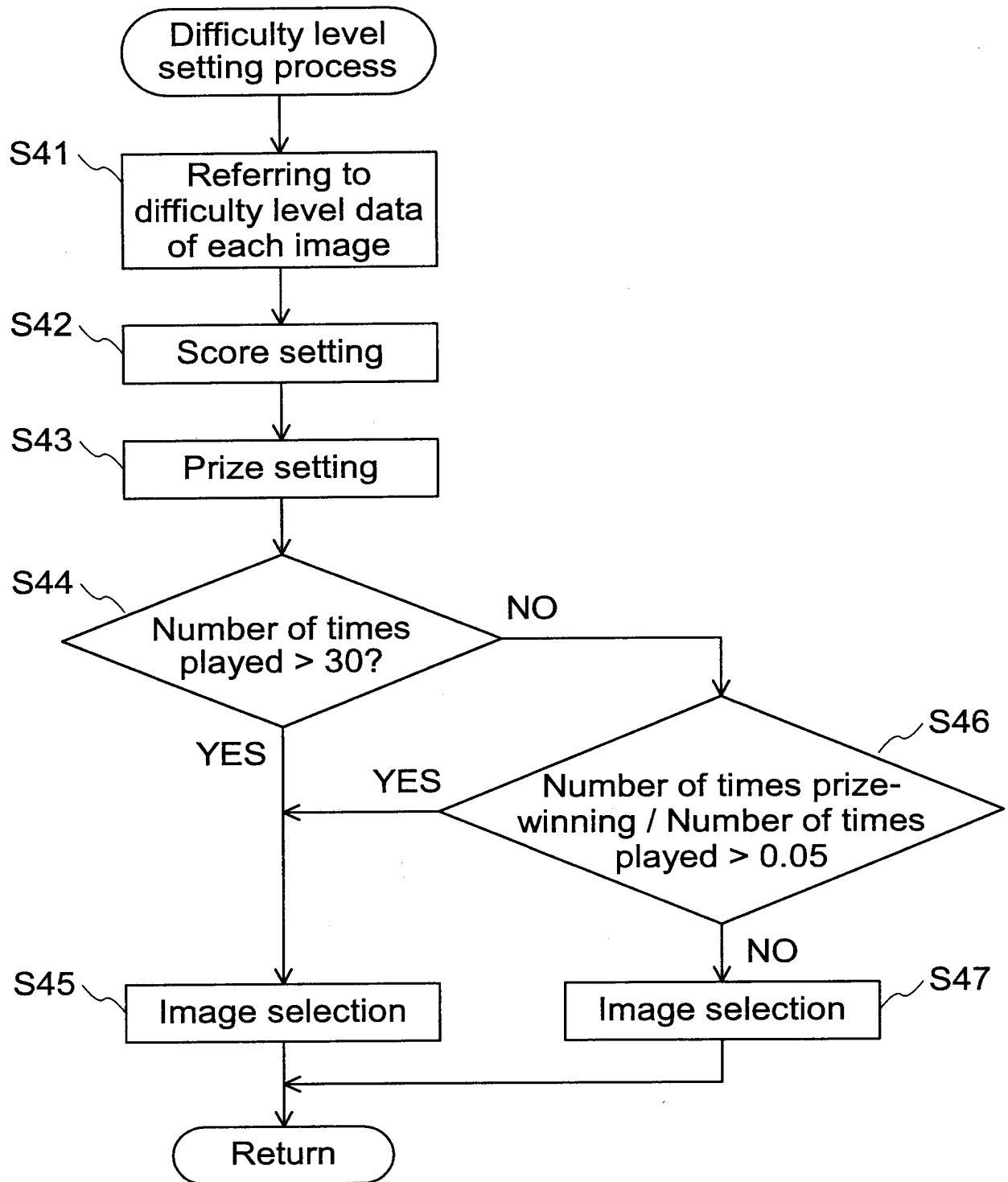


Fig. 12

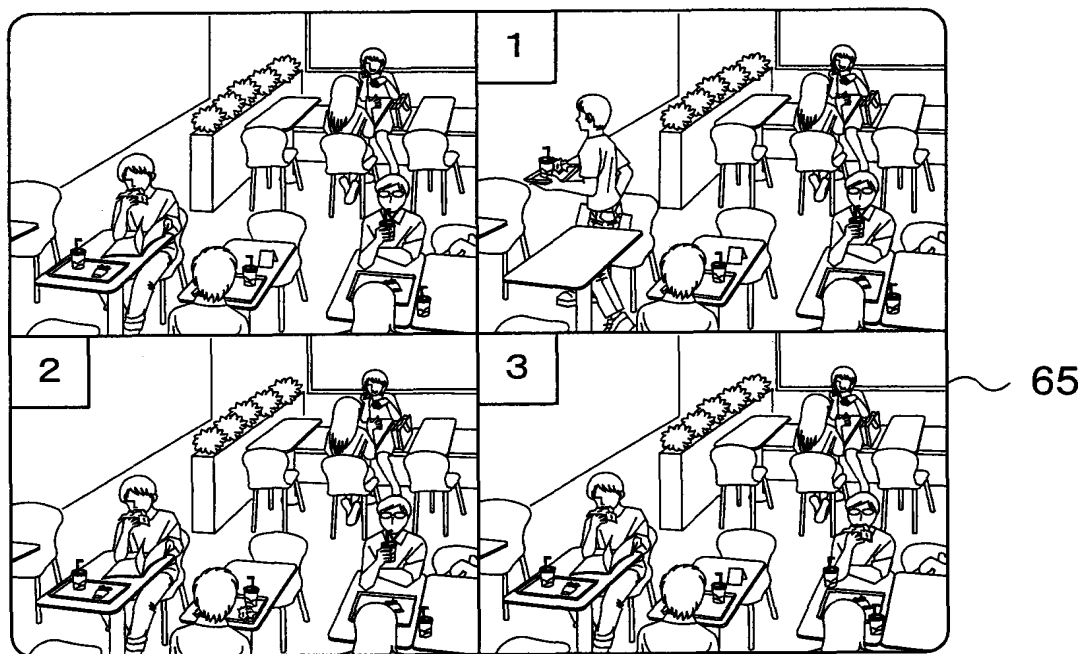


Fig. 13

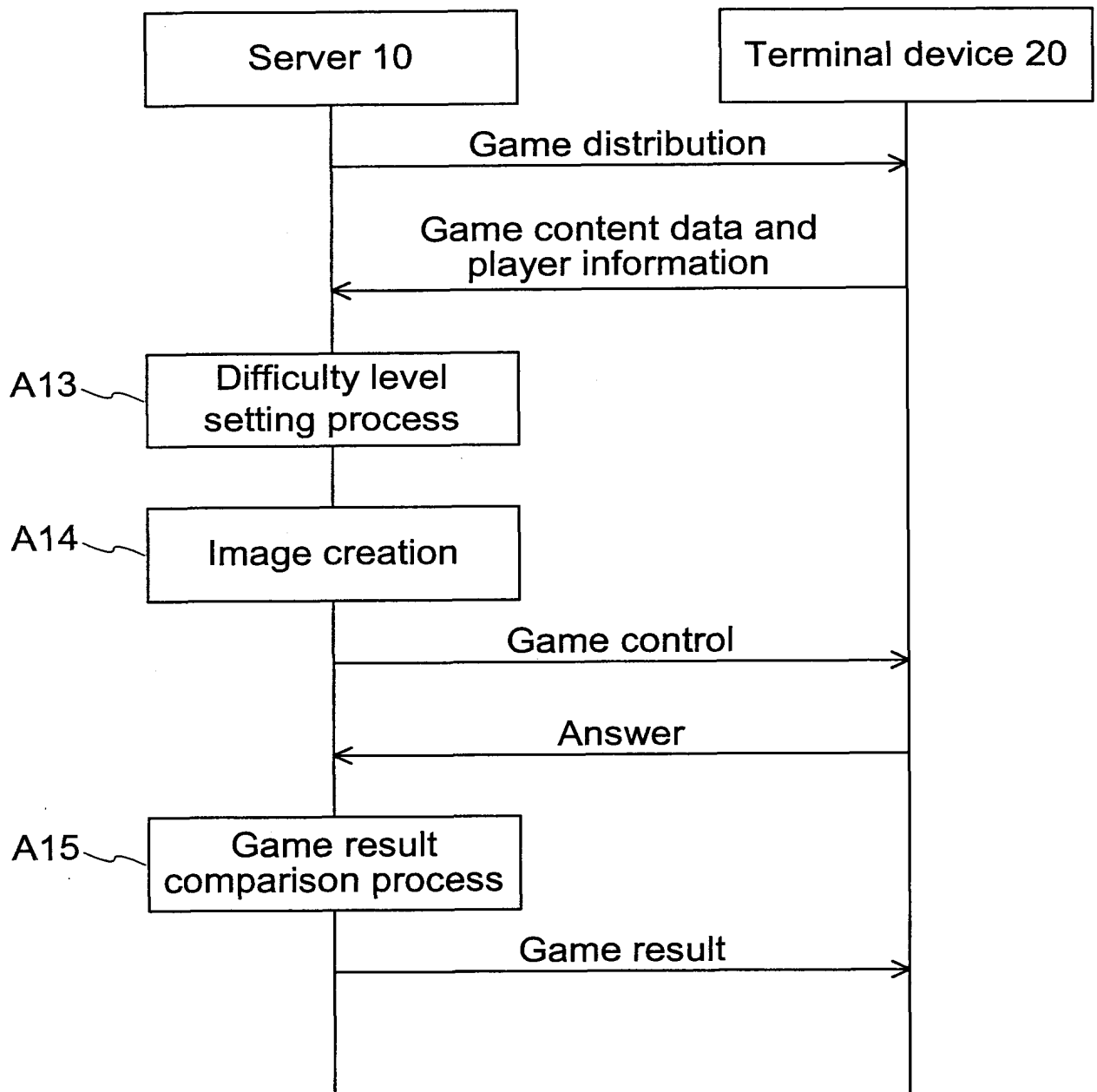




Fig. 14

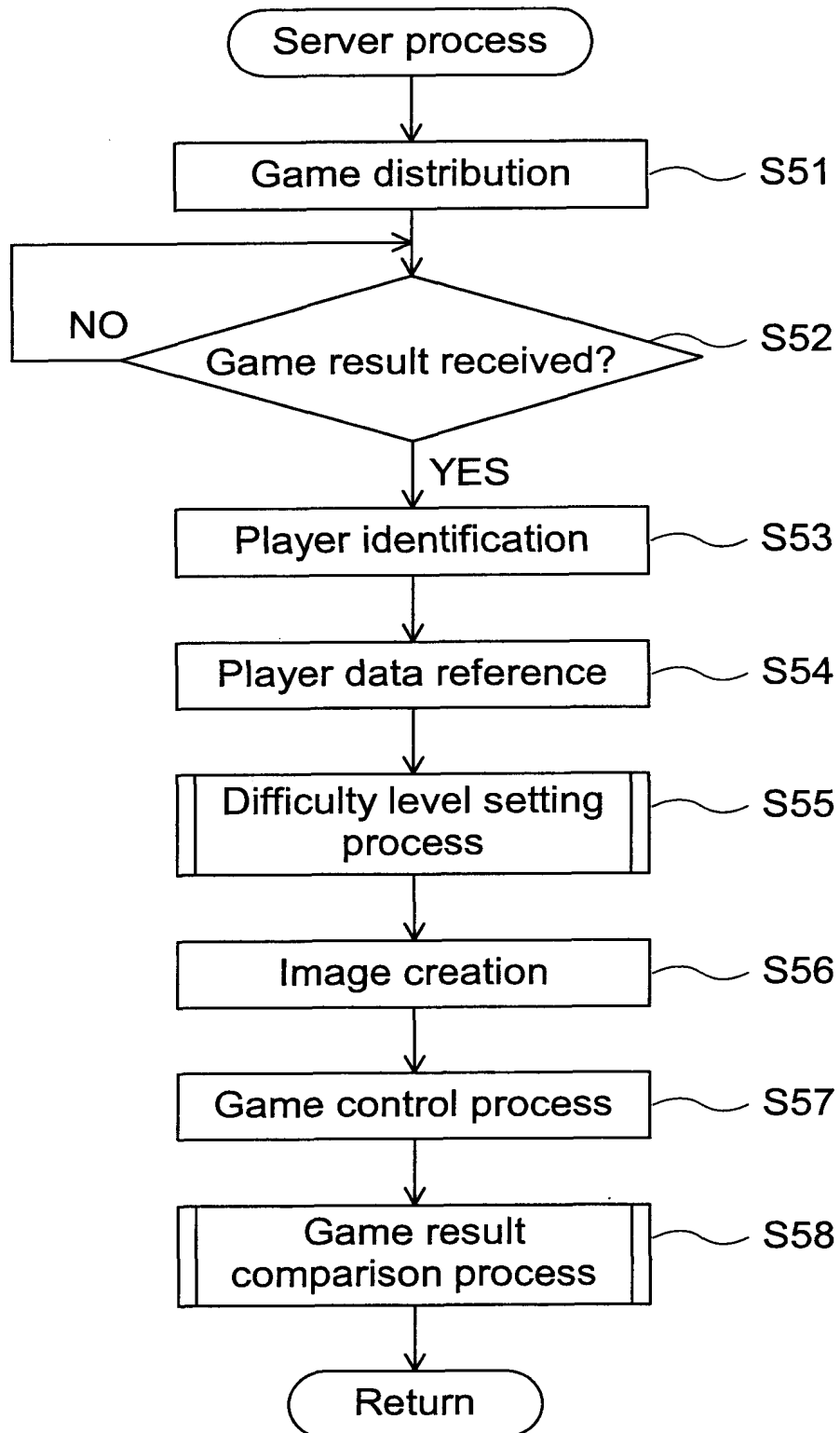


Fig. 15 (a)

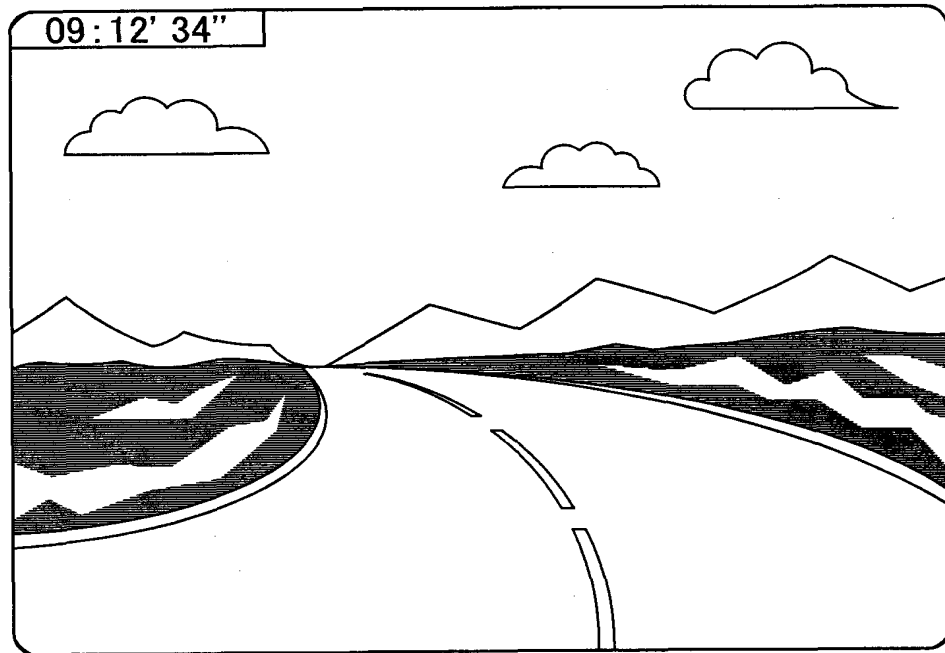


Fig. 15 (b)

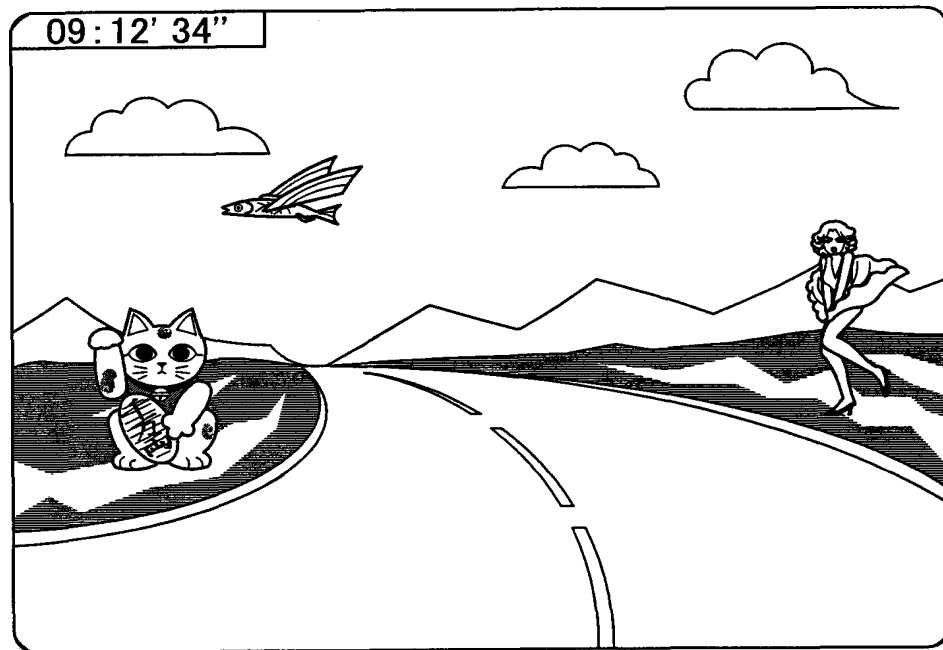


Fig. 16

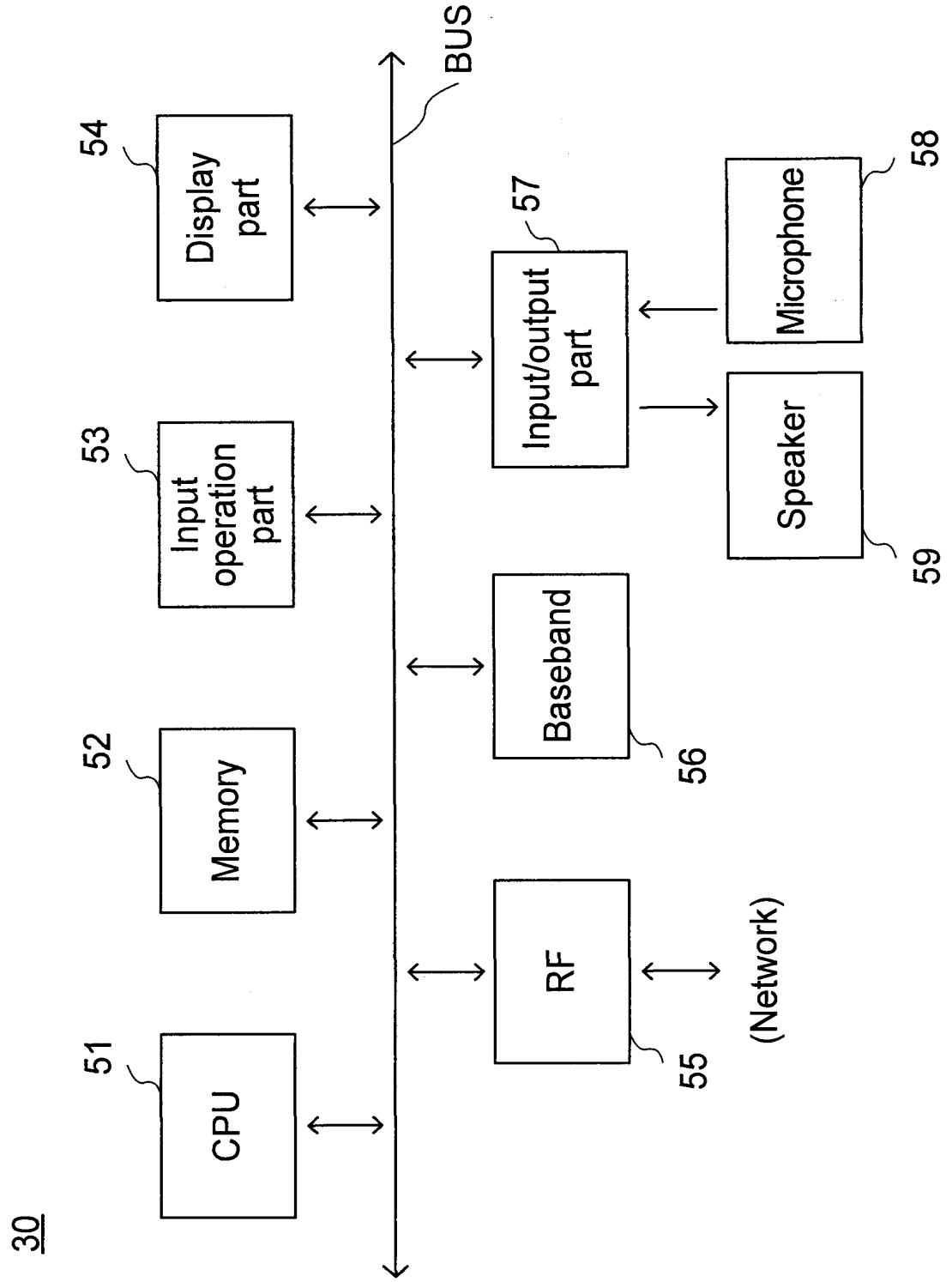


Fig. 17

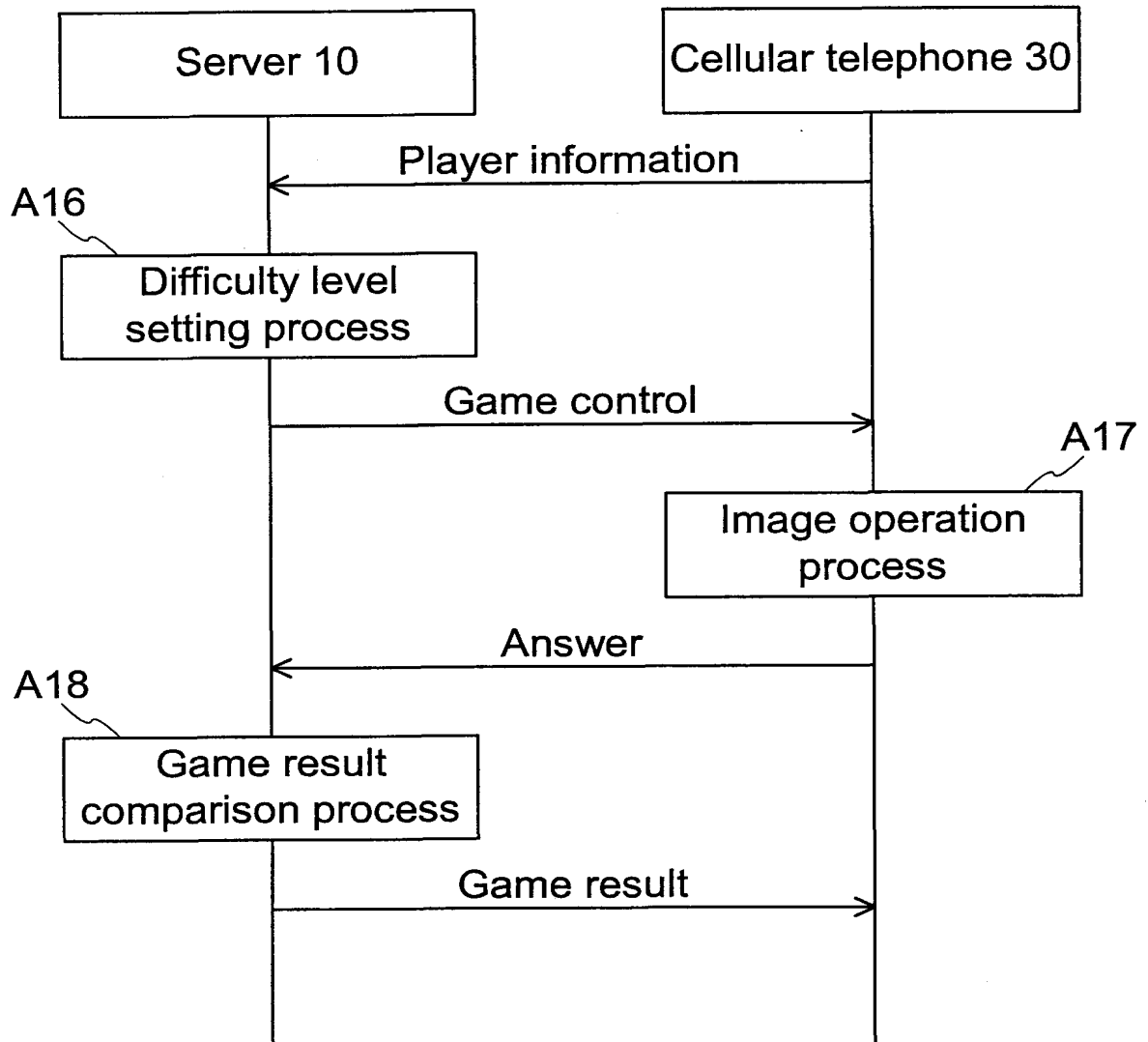


Fig. 18

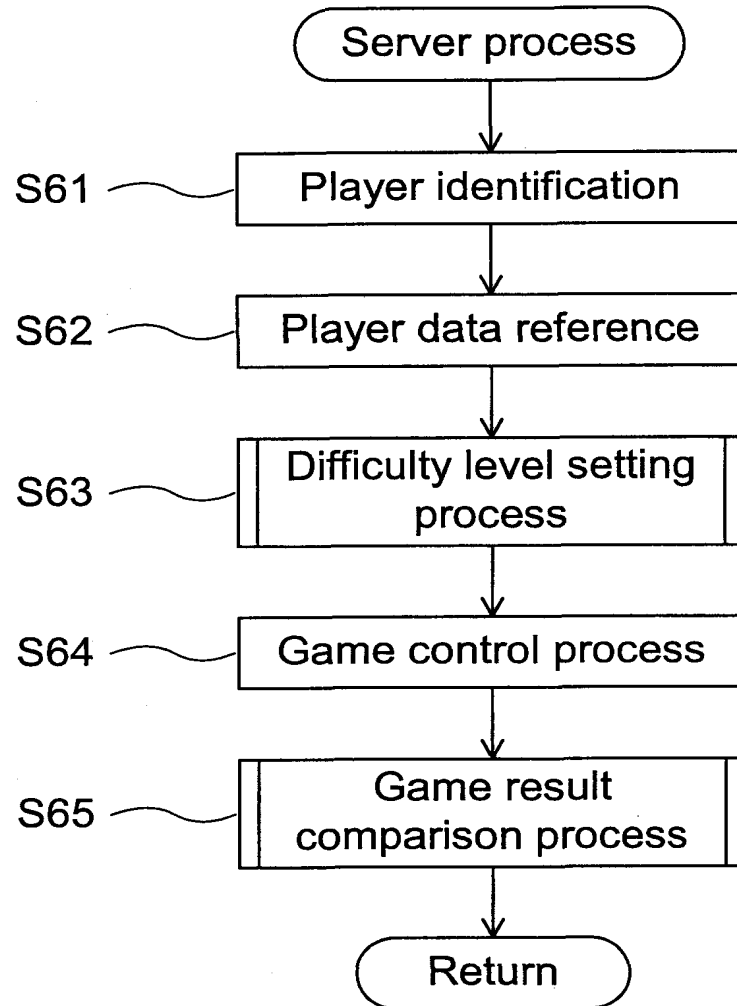


Fig. 19

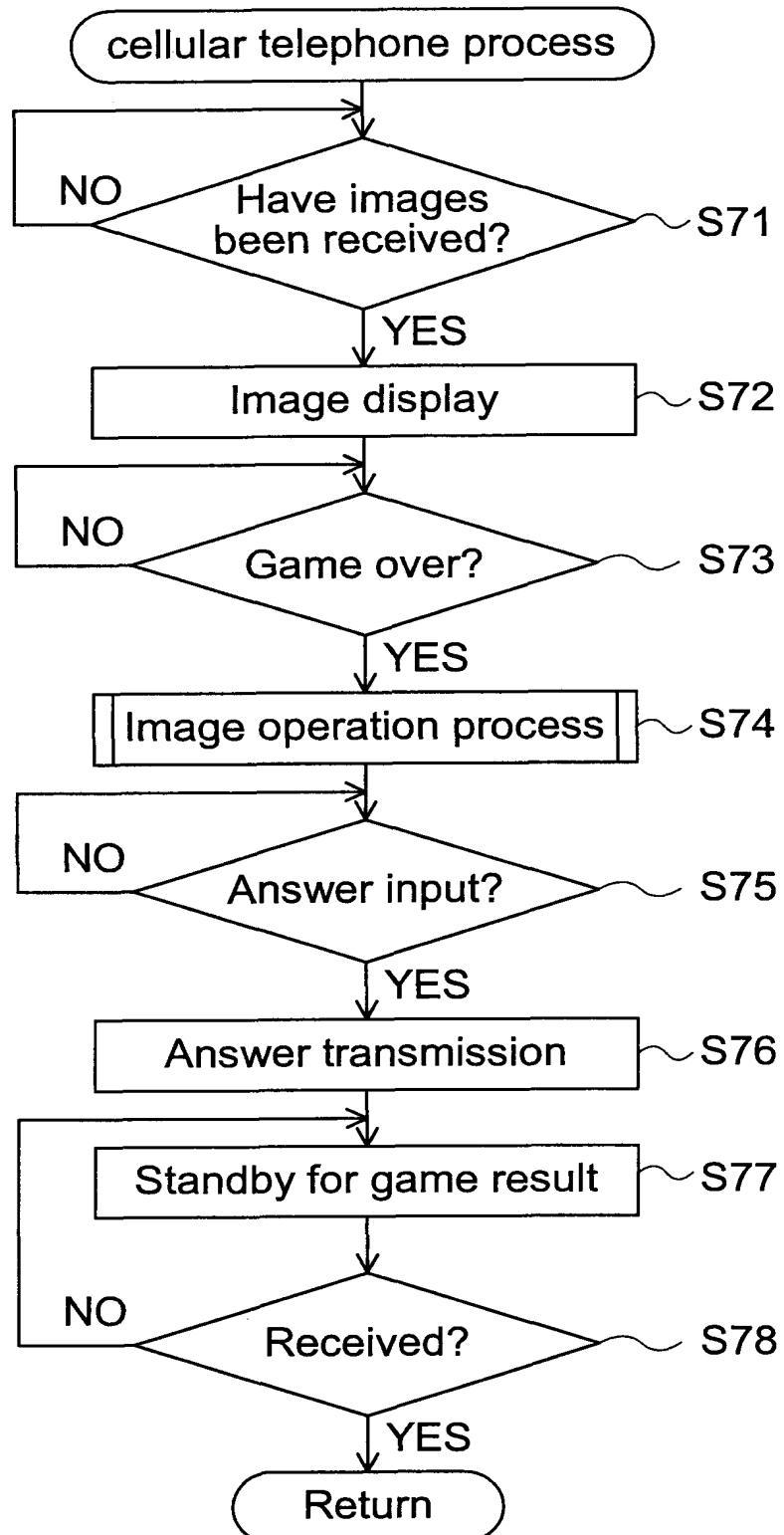


Fig. 20 (a)

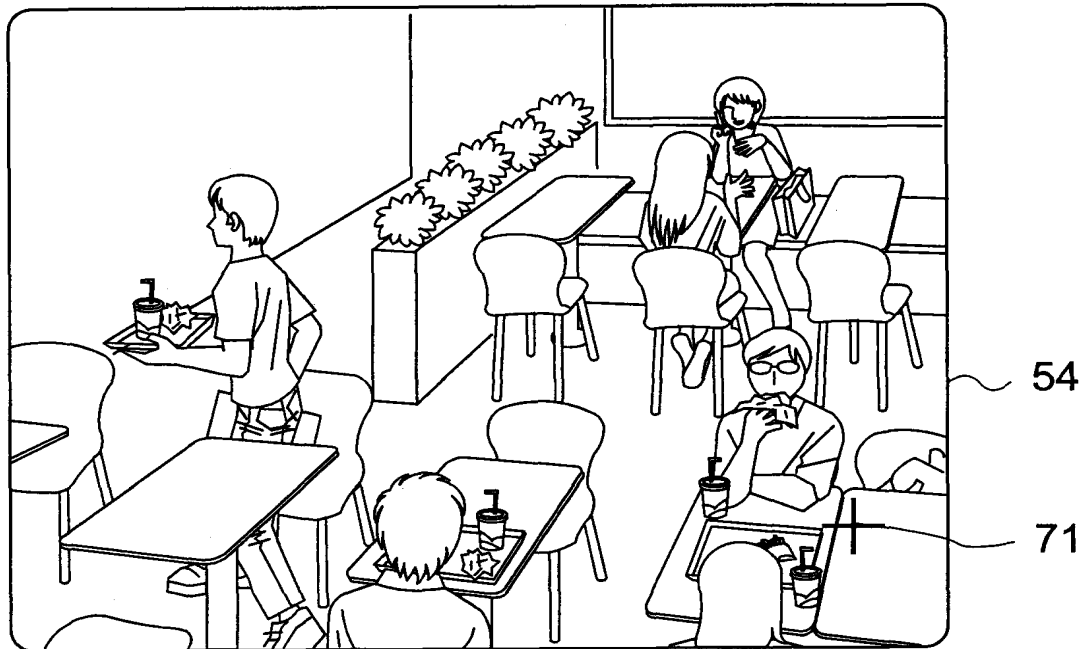


Fig. 20 (b)

